

No. 11054

IN THE

15.245
20 v. 2429

United States Circuit Court of Appeals

FOR THE NINTH CIRCUIT

INTERNATIONAL CARBONIC ENGINEERING
COMPANY,

Appellant,

vs.

NATURAL CARBONIC PRODUCTS, INC., a corporation, GEORGE PEPPERDINE FOUNDATION, a corporation, L. H. POLDERMAN, W. L. BENSON and C. B. BENSON, individually and as a copartnership doing business under the fictitious firm name and style of Natural Carbonic Products,

Appellees.

TRANSCRIPT OF RECORD

VOLUME III

(Pages 871 to 1314 Inclusive)

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for the Southern District of California,
Central Division

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(Testimony of William Howard Clapp)

A. Yes. Josephson is describing the plunger as an alternate method of putting on his follow-up pressure, as he calls it, in place of the small high-pressure pump which was used, and that would call for an entire modification of the structure.

Q. Is that modification disclosed or described in this patent? A. No, sir.

Q. Will you turn to the patent to Voightlander, No. 1,726,373, Defendants' Exhibit EE-22? This is an apparatus for extracting moisture in a laundry; that is your understanding?

A. Moisture from laundered articles; yes, sir.

Q. Yes. Have you any experience with that type of apparatus?

A. No. I never worked in a laundry. If it will help the record and help you, Mr. Lyon, I will state that I have never operated or never seen any machines just like those disclosed in these patents which we have or may discuss.

Mr. L. S. Lyon: The more important thing is whether that helps the court. I am not particularly—

The Court: It will save asking those same questions as to each patent, is all. [1510]

Mr. L. S. Lyon: I did not hear your Honor.

The Court: It will save asking those same questions as to each patent.

Mr. L. S. Lyon: Yes.

Q. By the Court: You mean in these patents described in this book— A. Yes, your Honor.

Q. —you have never seen any machine operating as indicated? A. Yes.

(Testimony of William Howard Clapp)

Q. By Mr. L. S. Lyon: Are you prepared to tell us what, if any, changes would have to be made in the apparatus shown in this Voightlander patent if you wanted to take a machine that was built in accordance with that patent to remove moisture from laundered articles and use it to manufacture solid blocks of CO_2 ?

A. I don't see that much of any change would need to be made. Possibly an inlet nozzle on the entrance from pipe 46. If we used that as an inlet, we might close off the drain pipe 43, but I don't think it would be necessary. Valves are shown for control of the outlet of gas and for regulation thereby of pressure within the chamber.

Q. Now let us take those up one at a time. You would have to add a new inlet for the liquid CO_2 above the plunger, would you not?

A. You are referring to the plunger 18?

Q. No; I am referring to the lower plunger. [1511]

A. 41. If we used the vacuum 45 as an inlet, it would be above plunger 41 when—

Q. If this machine was hooked up to handle laundered articles, you would have to then start in and change the vacuum system in order to use the vacuum line for flowing CO_2 into the machine, wouldn't you?

A. You would not use the vacuum line; you would not inject CO_2 under vacuum conditions there.

Q. What I am trying to get at is this, Doctor,—

A. I was suggesting we use the upper pipe, and I don't see as it makes much difference.

Q. Which upper—

A. We use the upper pipe as the inlet and the lower one as a withdrawal means.

(Testimony of William Howard Clapp)

Q. And you flow your liquid CO₂ on top of the plate 18; is that what you have in mind?

A. No. 18 would be raised up above the inlet there of pipe 46, which it can do.

Q. Wouldn't you have to change these platens and make solid platens if you were going to use this apparatus to make blocks of CO₂?

A. The platens are described as having 20 holes. I don't see that they would make much of any difference one way or the other.

Q. Well, do you know whether they would or not?

A. They would probably clog up with snow. [1512]

Q. What about the ability of this device to withstand pressures up to a thousand pounds? The system that they have on here for maintaining a closure in this device, you would change that, would you not?

A. Yes; that is probably not designed to withstand any pressures, but that is just a question of size and proportions.

Q. What pressures do you think this device would withstand and hold that had been built under this patent for removing moisture from laundry?

A. Well, they show a pretty large operating cylinder there, 15, with piston 16. We might assume that this tub was two feet in diameter and that that cylinder 15 was 14 or 15 inches in diameter. There is maybe a couple of hundred square inches of piston area with 30 pounds per square inch steam pressure, which would be a low steam pressure, somewhere around 60,000 pounds.

Q. That is the pressure you would apply to the clothes, isn't it?

A. No; I don't think so.

(Testimony of William Howard Clapp)

Q. What would be the pressure? Are you speaking of the pressure applied to the clothes?

A. No; I am speaking of the size of parts that may be disclosed here.

Q. What I am asking for, Professor, if you can give it, is what you think the internal pressure on the casing of this [1513] device would be when it was operated for removing moisture from laundry; it would be relatively low, wouldn't it, if any?

A. It would be very low. We are not dealing now with a fluid; we are dealing with clothes and squeezing them between those platens. There would not be much of any pressure on it.

Q. And a device of this kind, built for removing moisture from laundry, would not be built to withstand gas pressures of, say, a thousand pounds; you agree to that, do you not? A. Yes; I think that is true.

Mr. L. S. Lyon: That completes our cross examination, your Honor.

The Court: Very well.

Mr. Foster: I have a few questions on redirect, your Honor.

Redirect Examination

Q. By Mr. Foster: Will you direct your attention to the Cartier patent, Professor Clapp, which is tab No. 1 of the book of prior patents? You have testified on cross examination in response to Mr. Lyon's questions that you had not seen the devices illustrated in the drawings of the prior patents, including this patent to Cartier. Did you mean by that statement that you had not seen devices that were exactly like the drawings, or that you had not

(Testimony of William Howard Clapp)

seen devices that resembled in any way the devices illustrated in the [1514] drawings? Would you explain what you meant?

A. No; I have seen numerous devices that are of the types shown in the drawings. In fact, when I was a young man, 17 years old, we made a brick press with the two plungers, different operating means, but the same idea of pressing the brick between the plungers and ejecting it with one of the plungers after the pressing operation.

Q. Do I understand that when you say you had not seen the devices illustrated in these patents you did not mean that you had not seen apparatus which included the essential actual elements of the devices of the patents?

A. No; I did not mean that.

Q. Also during your cross examination, in response to a question from Mr. Lyon, you stated that it would be ridiculous for one to take a cotton press from a cotton pressing plant and move it into a carbon dioxide plant and attempt to use it for making carbon dioxide blocks. What do you mean by that statement?

A. Well, I believe that we were talking about pressing clay to make bricks. I meant it would be ridiculous for a person to think of doing that without making the proportions of the apparatus such as to make the brick of the size that he wanted to produce.

Q. You have referred also in your cross examination to statements made in handbooks with respect to the pressures at which blowers or exhausters operate. Can you produce [1515] the statements to which you referred?

A. I have here the 1924 edition of Mark's Mechanical Engineers' Handbook, page 1607, and I find the same

(Testimony of William Howard Clapp)

statement repeated in the fourth edition, 1941 handbook. I checked last night.

"Rotary blowers are built for air pressures varying from six ounces to ten pounds or even twelve pounds per square inch. The best efficiencies of this type of blower, however, are usually secured below five pounds pressure, but the simplicity of the machine gives it an advantage over the compressors of the piston type and frequently warrants its installation for higher pressures indicated when designed for this purpose."

Q. Was that the statement you had in mind in stating that the rotary blowers usually employed were comparatively low-pressure devices? A. It was.

Q. Now, would you direct your attention, Professor Clapp, to Fig. 1 of the patent in suit? Do you have that before you? A. I have. [1516]

Q. If the apparatus of this Fig. 1 is to be operated to produce blocks, let us say 10 inches by 10 inches by 10 inches, under triple point conditions, the gas pressure within the chamber 50 must be approximately 60 pounds or more per square inch; is that correct?

A. Yes, sir.

Q. And in producing such a block, can you give the court some indication of the quantity of gas which will be evolved, and which must be removed from the chamber 50?

A. It would be a very large quantity of gas. That couldn't be stated exactly, because there are a number of factors involved.

Q. It would be a very substantial quantity?

A. It would be a very substantial quantity of gas.

(Testimony of William Howard Clapp)

Q. I direct your attention to the patent in suit, page 2, line 9, where this statement appears: "The exhauster 81 drives the low pressure gas to an expansion tank 82 from which it is returned to the gas holder 12 by a pipe 83."

If, Professor Clapp, the exhauster 81 is driving gas to the gas holder 12, what will be the relative pressures on the inlet and outlet side of that exhauster 81?

A. The pressure on the inlet side will be less than that on the outlet side, and that probably would not exceed more than a pound in the gas holder.

Q. Therefore, if the exhauster 81, as stated in the patent in suit, is driving the gas to the gas holder 12, the [1517] pressure in the line between the exhauster 81 and the valve 80a will be less than a pound, and probably around one-half pound; is that right? A. Yes.

Q. If the exhauster 81 is driving the gas, as described in the patent, and the pressure, consequently, between the exhauster 81 and the valve 80 is in the neighborhood of one-half pound, what must the pressure be in the line between the chamber 50 and the valve 80a for the triple point operations you have described?

A. It must be 60.4 pounds gauge, approximately.

Q. 65 pounds or more?

A. Yes. About 60.4 gauge.

Q. Will you explain to the court whether or not it is possible to have 65 pounds or more pressure in the snow chamber 50, and in the line from the snow chamber to the valve 80a, and have only half a pound pressure from the valve 80a to the exhauster 81?

A. Yes, that is possible.

Q. Would you say, in order to produce a block that is a 10-inch cube, of triple point ice, with this operation,

(Testimony of William Howard Clapp)

that it would take at least many, many hours to withdraw the gas through the valve 80a so that its pressure on the inlet side would be 65 pounds or more, and the pressure on the [1518] outlet side half a pound?

A. I haven't figured it, but I believe it would if the exhauster were not operated.

Q. Is there any description in the specification of this patent that indicates that the exhauster 81 is used in any manner, or for any purpose, other than that described on page 2, beginning with line 9, as driving the gas to the gas holder 12 under the low pressure gas?

A. No, I found no other reference.

Q. How, Professor Clapp, if the apparatus of this Fig. 1 is not employed for the triple point operation, but is employed merely to introduce liquid carbon dioxide into the chamber 50 to permit it to be immediately solidified, a portion of it, below the triple point pressures, would it be possible to operate that apparatus at a pressure very slightly above atmospheric?

The Court: Will you read the question, please?

(Question read by the reporter.)

Mr. Foster: Let me reframe it. It is rather confusing.

The Court: It isn't very well stated. I think I know what you are after. Reframe it.

Q. By Mr. Foster: With respect to this apparatus of Fig. 1 of the patent in suit, Professor Clapp, if we desire to operate it at pressures below the triple point pressure, we could do so by introducing liquid carbon dioxide into the chamber 50 and withdrawing the gas therefrom [1519] through the pipe 80, so that the pres-

(Testimony of William Howard Clapp)

sure in the chamber 50 never reached 60 or 65 pounds per square inch, couldn't we?

A. Yes, by regulating the valve 80a.

Q. And the apparatus could be so operated to produce snow, which is not triple point snow, with the pressure in the chamber 50 very slightly above atmospheric pressure, couldn't it?

A. Yes, sir.

Q. And under such circumstances the exhauster 81 would, as described in the patent, be operating to drive low pressure gas over to the gas holder 12; is that correct?

A. That is right.

Q. Operating the apparatus in that manner to produce snow in the chamber 50, which is not triple point ice, you would not have that many, many hours required for withdrawing gas from the chamber 50 that would be required for withdrawing gas under triple point operations; is that correct?

Mr. L. S. Lyon: I object to the question. There is no basis for the assumption of many, many hours. The witness said he hadn't figured anything.

Mr. Foster: I understood the witness had agreed that it would take many, many hours under triple point conditions to withdraw gas at 60 pounds in the chamber 50.

Mr. L. S. Lyon: I don't know what is meant by agreed. The witness stated he had not made any calculations [1520]

The Court: I understood him to say to reduce, by passage through the valve 80a, the pressure on the higher side from 60 and about down to half or one pound, would take hours of time; is that correct?

A. I said I believed it would if the exhauster were not operated.

Q. You believed it would?

A. Yes.

(Testimony of William Howard Clapp)

Q. Now, the question is, given the conditions where you are operating in your tank something above atmospheric pressure and below 60 pounds, would the time be reduced by the transmission through the valve of the gas?

A. Yes, the time would be reduced, if we were running from 30 down to one, with the valve cracked, instead of 60 to one under static condition through the same valve opening.

Q. Let's see if I understand what you are saying. The length of time that it would take to pass through the valve would be in proportion to the drop in pressure; is that correct?

A. No; if we maintained one pound on the outlet, and started with 60 pounds pressure on the inlet, a given volume of gas in there to be let through—

Q. The same volume in each instance?

A. Yes—we would come down from 60 to 30 pounds in shorter time than we would from 30 to one [1521]

Q. Exactly; but I say, it would be in proportion to the variation in pressure?

A. Yes, but never in direct proportion.

Q. In inverted proportion?

A. It would take longer as we approached the outward pressure.

Mr. Foster: Does that complete the court's questions?

The Court: Yes, entirely.

Q. By Mr. Foster: Now, in the course of your cross examination with respect to some of these prior patents, you have stated that you believed that the devices which were shown in illustrative drawings in these prior patents could be improved if the apparatus was to be used to

(Testimony of William Howard Clapp)

produce solid carbon dioxide, if an inlet, a liquid carbon dioxide inlet, were added to the apparatus. Do you find in any of the prior patents relating to the carbon dioxide industry any liquid carbon dioxide inlets that are satisfactory for the introduction of liquid carbon dioxide into a solidifying chamber?

Mr. L. S. Lyon: I object to the question as a misstatement of the testimony of the witness. He did not say anything about improving the devices, by adding the inlet. He testified they would have to have an inlet added if they were going to be used for the purpose of making CO₂ blocks.

The Court: Read the question.

(Question read by the reporter.) [1522]

The Court: I think the objection is sound. You may answer the question with the understanding that in some instances, as I understood your testimony, you said there would have to be provided an inlet, and in others you advised that the inlet be changed; is that correct?

A. Yes.

The Court: With that understanding you may answer.

A. We would find an inlet in Slate, 1,546,682; in Martin 1,659,434; and the same Martin in '435. We could go to the inlets on the devices for making the carbon dioxide pencils. Those are commercial carbon dioxide products, and which are using the inlet simply as a closure valve of the carbon dioxide tank. That is Flemming 955,454; Julius, 1,018,568.

Q. You also stated on your cross examination, with respect to some of these devices as they are illustrated in the prior patents, that you would add or vary the proportions of the gas outlet, if they were to be used for the production of solid carbon dioxide.

(Testimony of William Howard Clapp)

The Court: Let us ask this question after the recess.
(Short recess.)

Mr. Foster: I think we have a question on the record.
(Question read by the reporter.)

A. Yes, sir.

Q. Do you find any such gas outlet as contemplated in these answers in any of the prior patents concerning [1523] which you have testified, which relate to the carbon dioxide solidification industry?

A. Yes, I can give you the same patents which I have previously given for having gas inlets.

Q. In your cross examination you were interrogated with respect to the gasket which appears upon the model, Defendants' Exhibit II. Was there any statement in the Stastney patent, 1,288,255, which instructed you to have the top member of this device in air-tight relationship with the chamber? A. There was.

Q. Would you read that statement?

A. On page 1 of the Stastney patent, commencing with line 75:

"The upper end of the mold is equipped with a removable cover 18 arranged to form an air-tight connection with the mold."

Q. I note that the next sentence, beginning line 79, states:

"The cover is provided further with a vent or overflow valve 20, as clearly appears in Fig. 1."

Can the valve which is attached to the upper end of this model, Defendants' Exhibit II, be properly described as a vent valve, Professor Clapp?

A. Certainly. I might state, with regard to the previous question, that the gasket means is the usual and

(Testimony of William Howard Clapp)

[1524] economic means of providing an air-tight connection.

Mr. Foster: No further redirect examination.

Recross-Examination

Q. By Mr. L. S. Lyon: Professor, will you turn once more to Fig. 1 of the Cole and McLaren patent?

The Court: Excuse me; you have no redirect?

Mr. Miketta: No.

The Court: Will you read that question?

(Question read by the reporter.) [1525]

Q. By Mr. L. S. Lyon: (Continuing) Does it make any difference in the time required to the production of triple point ice in the chamber 50 whether the pipe 80 was disconnected immediately outside of the chamber 50 or left intact as shown in the diagram, with the exhauster, gas holder, etc.?

A. If the pipe 80 was entirely disconnected, we would be exhausting to the air, would we not?

Q. Yes.

A. And then pressures,—as compared with valve 80a in a cracked position, or is it with the valve open?

Q. Well, let us take it open, first.

A. Open and the exhauster driving the gas back to the gas holder.

Q. Yes.

A. No; I don't think it would make any material difference provided the exhauster is taking away the gas so as to maintain atmospheric pressure on the suction side of valve 80a.

Q. How much difference would it make if the valve 80a was cracked so as to provide a pressure on the far side of the valve of, say, 30 pounds?

The Court: On the low side, you mean?

(Testimony of William Howard Clapp)

Mr. L. S. Lyon: On the low side.

The Court: Now, the question is: How would it affect the duration of the process of making the triple point product in the chamber.

Mr. L. S. Lyon: That is right, your Honor. [1526]

A. With the same valve opening, it would take longer than it would if the pressure on the outlet side of valve 80a were atmospheric.

Q. How much?

A. I couldn't state without—

Q. Would it be twice as long or half again as long or how long?

A. It would be somewhat longer.

Q. Have you any figure in mind or is that just a general assumption on your part?

A. Oh, no; it is a knowledge of the length of time required as pressures are reduced for discharge down to a lower pressure.

Q. This valve is what you call cracked or sufficiently open so that the flow of the gas through the valve drops in pressure form, say, 60 pounds down to 30, and that is continuing during the time of the boil-out period.

A. Yes.

Q. You understand that?

A. We are dropping from 60—

Q. To 30.

A. —to 30 pounds.

Q. During the boil-out period.

A. And we are letting that—

Q. Would the boil-out period be any shorter if the valve was open completely in making triple point ice?

A. If the valve was open completely we would not have 30 pounds on one side and 60 pounds on the other. [1527]

(Testimony of William Howard Clapp)

Q. Then you have to maintain 60 pounds in the chamber and that is the determining factor, isn't it, as far as time is concerned?

Mr. Foster: Objected to as indefinite in the use of the term "determining factor."

The Court: Well, I think it is objectionable. I think I understand what you mean.

Q. In order to carry on the triple point operation you have got to maintain a pressure in the chamber of substantially 60.4 or above, therefore, you have to maintain the same pressure in the conduit line up to the valve 80a, have you not?

A. That is right; yes, sir.

Q. If you crack that valve 80a so that it is going to permit or reduce the pressure on the low side to 30, are you not going to slow up the process of manufacture of your triple point product in the chamber?

A. Is it not going to take longer with the valve cracked and 30 pounds resistance than if we had a—

The Court: Open to atmosphere.

A. No; it would—let's see. I am contrasting the two situations as going from 60 pounds down to atmospheric conditions and exhausting, and from 60 pounds down to 30 pounds.

The Court: I do not care how you go at it.

Mr. L. S. Lyon: Maybe I can shorten this question for [1528] the Professor's consideration by asking a simple question.

Mr. Morris: May I have this answer read? I missed part of it when he was looking towards your Honor and I want to follow it.

(Testimony of William Howard Clapp)

The Court: I do not think he answered. I think he just asked be about the question. But you read my question and read what he said afterwards, if you will.

(Record read down to and including the following: "Is it not going to take longer with the valve cracked and 30 pounds resistance than if you had a—")

The Court: Cut that part of it out and just go back to my question.

(Question read by the reporter.)

The Court: And now answer my question, if you can.

A. Yes, sir. It would take longer working against a back-pressure of 30 pounds for that evaporation of the liquid CO₂ to be completed than it would if that were working down to atmospheric pressure and exhausting with the same valve opening.

Q. By Mr. L. S. Lyon: Professor, let me ask you to consider this: That you are regulating the valve 80a so as to maintain a pressure of, say, 60 pounds in the chamber 50; now, would it make a difference in the boil-out time whether you disconnect the entire piping system to the exhauster and the gas holder on the low-pressure side of the valve, or whether you leave it connected to the exhauster and the gas holder? [1529]

Mr. Miketta: Your Honor, that is objected to as either being a hypothetical question or assuming facts contrary to the teachings of the patent.

The Court: I do not think it is very clear. That might be interpreted to mean if you just closed that valve 80a entirely, or it might mean that you broke the pipe off on the apparatus side of the valve so that it was open to atmosphere.

Mr. L. S. Lyon: I will clear the matter up.

(Testimony of William Howard Clapp)

Q. Professor, the pressure in the chamber 50 is generated by the vaporization of the liquid and the formation of gas, is it not? A. Yes, sir.

Q. During the boil-out period? A. Yes, sir.

Q. And that is continuing during the boil-out period?

A. That is right.

Q. And the pressure that is built up by that gas in the chamber will be determined by the extent to which you close this valve 80a?

A. Yes. The pressure in the chamber would drop somewhat from 60.4 gauge if the valve were opened widely.

Q. Now, then, if you close that valve down so that you maintain in the chamber a pressure of 60 pounds during that boil-out period, it doesn't make any difference what the conditions are on the outlet side of the valve so far as the length of the boil-out time is concerned?
[1530]

A. Oh, yes.

Q. Isn't that correct?

A. No, sir. It makes a lot of difference.

Q. If I regulate the outlet valve to maintain a pressure of 60 pounds in the chamber 50, how can the conditions on the low-pressure side of the line beyond the valve make any difference as to what happens in the chamber 50?

A. You are evolving a certain amount of liquid carbon dioxide, you are evolving it under conditions under which you are going to maintain 60 pounds of pressure in the cylinder. Now, you can—

The Court: Now, let us see if I understand you. In other words, you are going to regulate the intake and the outlet so as to maintain the pressure at 60 pounds?

(Testimony of William Howard Clapp)

A. I was thinking of allowing a certain amount go in there and then having these conditions precede.

The Court: It was not clear in the record and I wanted to clear it up.

Mr. Miketta: If the court please, may I ask—

Q. By Mr. L. S. Lyon: As a matter of fact, Professor, during this boil-out in the triple point operation, you understand that that starts at 60 pounds and stays there automatically due to the operation of nature until complete solidification; you understand that, do you not?

A. Let me give an analogy. This is a situation very similar to what we would have in a steam boiler with a [1531] certain amount of water in the boiler and heated up to a certain pressure, a valve with an outlet. Now, if we maintain that pressure, we maintain a definite temperature within that boiler and we can evaporate so much water, no more. If I open the outlet, then some of that steam passes out. The lower the pressure on the outlet side and the wider that valve is opened, the more rapidly it passes out; and then more water may evaporate and pass through the valve. The situations are similar.

Q. Now, wait a minute. Are they, Professor? Are you testifying that you will change the length of the boil-out period by how far you crack this valve 80a?

A. Yes.

Q. Will you lengthen the boil-out period by shutting the valve down to maintain a higher pressure in the chamber 50?

Mr. Miketta: If the court please, I think that question is ambiguous by not properly defining what counsel means by the "boil-out period." He is referring simply to the time at which the pressure is exactly 60 pounds, or the total period of time from the initiation to the com-

(Testimony of William Howard Clapp)

pletion of a snowing operation with a given charge of liquid in the chamber?

Mr. L. S. Lyon: I think if the witness needs any explanation he can ask for it, your Honor. I do not think counsel should interfere on cross-examination.

The Court: That same thing occurred to me, that there [1532] might be a confusion between the counsel and the witness as to just what you meant by the "boil-out period." It might make some difference. That is why I asked the question as to whether he thought there was during that period still an inflow of carbon dioxide, or whether that valve had been closed off.

Q. By Mr. L. S. Lyon: During the boil-out period, you understand, do you not, Professor, that the entrance of liquid CO_2 has been stopped?

A. That is the way I did understand it.

Q. And you understand that the boil-out period is the period that takes place after the feeding of the CO_2 and while part of the liquid CO_2 is vaporizing and maintaining automatically a pressure of approximately 60 pounds, the triple point pressure, you understand that?

A. Yes, sir: and I understand that there is a further period during which the pressure is reduced to atmospheric pressure.

Q. What difference does it make in that operation—

Mr. Miketta: May the court please, may he finish the answer?

Q. By Mr. L. S. Lyon: What difference does it make in that operation whether you close the valve 80a or do not close the valve 80a or how you close the valve 80a?

Mr. Miketta: May the court please, I think the witness was interrupted in next to the last answer.

(Testimony of William Howard Clapp)

The Court: Well, I think maybe he was. But if you had not finished, you may do so, or you may answer this question [1533] first.

A. Yes, sir. Well, we have a restricted volume between 80a, including the snow chamber. The liquid must change to snow and to gas. That gas will be a certain number of cubic feet there at the 60.4 pounds pressure, and if you are going to maintain 60.4 pounds pressure and the valve 80a is closed, then only so much liquid may be evaporated and the rest would have to remain liquid at that pressure and temperature.

Q. By Mr. L. S. Lyon: Perhaps we can get at it this way, Professor: Are you familiar with the commercial manufacture of triple point dry ice, how it is done?

Mr. Miketta: Previously asked and answered, your Honor.

The Court: Well, if there is any question about it, let us find out. You may answer it. I think it was, but I am not absolutely sure.

Mr. L. S. Lyon: Did you hear my question?

A. Yes. I think I am reasonably familiar with it.

Q. During the feeding in of the liquid CO₂ how is the valve on the blow-out line regulated,—so as to do what? We are talking about the regular commercial practice, as you know it, of making the triple point ice.

A. Then we would have a valve on the exhaust line.

Q. On the blow-out line, as I call it, or gas outlet line?

A. Yes.

The Court: From the feed line 80. [1534]

Q. By Mr. L. S. Lyon: Corresponding to the line 80?

A. Yes.

(Testimony of William Howard Clapp)

Q. How would you set that valve?

A. You could regulate that, using a gauge, regulating the rate of flow out of the valve.

Q. I mean what do they do actually? To what setting do they put that valve, do you know, to do what, or to produce what effect in the chamber during the inlet period?

A. During the inlet period you might be running in at 60 to 70 pounds per square inch.

Q. Do they do that? A. I think they do.

Q. Do they set that valve so that that pressure will be established in the chamber in commercial practice?

A. I couldn't say.

Q. Now, then, after they stop the feeding of the CO₂ into the chamber in commercial practice do they change the setting of the valve on that outlet line corresponding to line 80, do you know?

A. No; I don't think so.

Q. Do you know?

A. I don't believe they do. I haven't watched that thing closely and I can't make positive statements about it.

Q. All right. You have called attention in the Stastney patent to the statement that the cover is to be mounted on the chamber air-tight. Is there a difference between the [1535] degree of sealing that represents an air-tight seal and one that will withstand gas pressures up to a thousand pounds?

A. Well, this gasket—

Q. Just can you answer that?

The Witness: Read the question again, Mr. Reporter.

(Testimony of William Howard Clapp)

(Question read by the reporter.)

A. No; I wouldn't say so.

Q. Isn't it a seal air-tight if it will withstand atmospheric pressure?

A. Certainly, if you have less than atmospheric on the other side.

Q. Yes. What is atmospheric pressure in pounds?

A. About 14 and—it depends upon your elevation—14.7, maybe, at sea level.

Q. Then, if in accordance with the Stastney patent the seal was made to withstand that pressure, it would fulfill the direction of the Stastney patent to produce an air-tight seal, would it not? A. It would.

Q. And such a seal, if it would only withstand atmospheric pressure, would not withstand CO₂ pressures of an order of a thousand pounds; that is obvious, isn't it?

A. Well, you screw the nuts down a little tighter, that is all. We tested this device—

Mr. L. S. Lyon: I move to strike the answer, and ask the Professor if he will answer the question. [1536]

The Court: Read the question, please.

(Question read by the reporter.)

The Court: Read it again.

(Question again read by the reporter.)

The Court: Yes; I think you may answer that yes or no and you may explain it, if you wish.

A. I am not sure whether it is obvious or not. If you had CO₂ snow there, it would probably choke it up, but we will say "yes," that is obvious.

Q. By the Court: Well, let us put it another way. If you are examining an apparatus in engineering and the apparatus is designed to have a pressure in it for

(Testimony of William Howard Clapp)

its operation of approximately 14.7 approximately atmospheric at sea level, and the specification says "an air-tight seal," any kind of a seal that will avoid the escape normally at 14.7 is sufficient, isn't it? A. Yes, sir.

Q. All right. Now suppose that your device is supposed to have a pressure of a hundred atmospheres, your seal is going to have to be something different if outside the atmosphere? A. Yes, sir.

Mr. L. S. Lyon: I have no further cross-examination. Thank you very much, Professor. [1537]

Redirect Examination

Q. By Mr. Miketta: Just one question, Professor Clapp. Will you please refer to Fig. 1 of the patent in suit?

The Court: Didn't we have one of these big things for Fig. 1?

Go ahead.

Q. By Mr. Miketta: Professor Clapp, let us assume that the chamber 50 contains a quantity of liquid carbon dioxide and that the pressure in that chamber, because of the introduction of liquid carbon dioxide therein, is, let us say, at 75 pounds, and the chamber is closed and the valve 80a is also closed, so that the line 80 is closed also, and no gas is escaping from that chamber; will you have any solidification taking place in that chamber under those conditions?

The Witness: Now, would you read the question again?

(Question read by the reporter.)

A. You are speaking of 75 pounds gauge?

Mr. Miketta: 75 pounds gauge.

A. No; you would not.

Q. Now, starting with that premise, if you now opened the valve 80a, and let us assume that it simply leads

(Testimony of William Howard Clapp)

to the atmosphere so as to forget the rest of the equipment—do you have that assumption in mind?

A. Yes, sir.

Q. —if you opened the valve 80a, some gas will escape, will it not? [1538]

A. It will.

* * * * *

Q. Assuming that the head 70 is against the closure chamber or against the pressing chamber 60, Professor Clapp, chamber 60 being in communication with the snow chamber 50, the snow chamber 50 being in communication with line 80, but the valves 80c and 80a are closed, so that we have a closed system consisting of the snow chamber, pressing chamber, and the pipe 80; and we have a body of liquid carbon dioxide in the chamber 50 at a pressure of 75 pounds; under those conditions no solidification will take place, is that correct?

A. Yes, sir.

Q. Assuming that the valve 80a discharges into the atmosphere and you open that valve, what will happen?

A. Gas will escape and more liquid, if it is not all evaporated, will evaporate.

Q. At what pressure will it begin to evaporate?

A. It will begin to evaporate at the same pressure and temperature as the change from solid to liquid. I believe that is—

Q. 60.

A. —about 60.4 and nearly minus 70 degrees Fahrenheit.

The Court: Now, I think we have some confusion here again, too. You did not have your apparatus closed off, there was no valve right at the apparatus this time, and you [1540] opened up your valve 80a and you had previously had a pressure of 75 pounds in the chamber,

(Testimony of William Howard Clapp)

with no outlet, no circulation of the gas, no evaporation took place, no product was being manufactured. Now you open that valve and then you say at what point would evaporation begin. It would begin instantly, wouldn't it, the minute you opened up that valve?

Mr. Miketta: As soon as the pressure dropped to 60.4, your Honor.

The Court: Well, no. It is going to start immediately and it is going to keep on until you get down to that. If you get down below, you are not going to make triple point ice; isn't that true?

Mr. Miketta: That is correct.

Q. At what pressure, Professor Clapp,—I think this will express it—at what pressure will solidification of that liquid begin?

A. When the pressure has dropped to about 60.4 pounds gauge.

Q. Variation in the position of that valve 80a would not vary that triple point pressure, would it, that is, opening it wider or choking it down a little bit?

A. Would not change the pressure and temperature at which solidification commenced?

Q. That is correct?

A. Opening gas outlet valve widely will reduce the pressure in chamber 50 slightly more during solidification than if the valve were opened slightly. [1541]

Mr. Miketta: That is correct. I think that will be all, your Honor.

The Court: Now, let us see if I understand what you were getting at. You are just saying that, by itself, the opening or closing of that valve would not affect the point at which the triple point operation took place; if the pressure was above that, it would go on, if the other

(Testimony of William Howard Clapp)

conditions were correct; if it were below that, it would not, but the point remains stationary.

Mr. Miketta: That is correct your Honor. That is to remove an implication or confusion, perhaps, by one of the questions on cross-examination which referred to variations in that solidification time or pressure by manipulating the valve. [1542]

Recross-Examination

By Mr. L. S. Lyon:

Q. If you are going to operate at triple point, and make triple point ice in the chamber, you want to set that valve 80a so you will maintain the right gas flow, so that the pressure of the gas in the chamber will be 60 pounds, don't you?

A. In order to make triple point?

Q. Yes.

A. Yes. About 60.4 gauge but various valve openings may be employed.

Q. If you do not have any valve at all, you could not make triple point ice, isn't that right,—if you just had a pipe open to the atmosphere?

A. Probably your pressure would drop so rapidly your temperature would drop correspondingly and the solidification would proceed more rapidly.

The Court: It would depend entirely on the size of that pipe? A. Yes.

Q. By Mr. L. S. Lyon: Therefore, what you must do, in any event, is to operate the valve so that you permit a gas flow at a rate which will result in the gas remaining in the chamber reaching a temperature—a pressure of the triple point?

A. Yes, sir. If you set your valve for that, it isn't going to make a bit of difference what is on the other side of the *valvem* on the low side, is it?

(Testimony of William Howard Clapp)

A. That depends on what you mean by difference. There is a time element involved. [1543]

Q. The amount of gas that can go through that valve has got to be such as will result in a pressure of 60 pounds in the chamber?

A. Yes, sir. About 60.4 gauge.

Q. Otherwise you can't get triple point operation?

A. That's right.

Q. So you have got to set that valve to pass the proper amount in a given length of time; isn't that correct?

A. No, I don't think so, because you have a certain quantity of liquid to evaporate, and each pound of that liquid that goes into gas occupies a certain volume. There is always gas in that chamber. When you say you start with 60.4 or 75 pounds, you are not starting with just liquid. Immediately the liquid is introduced a volume of gas fills the chamber, and the gas and liquid are in the chamber there at the same pressure.

The Court: You are going to have three elements there?

A. Yes.

Q. That is what triple point is?

A. Yes.

Q. Otherwise you would not have triple point.

Q. By Mr. L. S. Lyon: As a matter of fact, in a commercial industry they use a valve corresponding to valve 81 to control the boil-off time, that is, the rate of boil-off—the valve 80a, I should say, instead of 81—do they not? [1544]

A. I would imagine that would be the way it would be done.

Q. Do you know whether there is any advantage in relation, say, in the quantity of the product, in point of boil-off time?

(Testimony of William Howard Clapp)

A. No, I don't know what the relative advantages or disadvantages of snow ice compressed is as compared with so-called triple point ice. I would imagine the latter would be more dense and compact.

The Court: Do you mean you don't know the public demand for the different types?

A. No, sir, I don't. I know it has varied a great deal in the past.

Mr. L. S. Lyon: Your Honor, I think the Professor has told us all he can on this subject. I think he has been very frank and has tried to help us in every way he could. I don't think we are going to get anywhere, either one of us, in pursuing it any further.

The Court: Are you gentlemen through?

Mr. Miketta: Yes. [1545]

* * * * *

AFTERNOON SESSION

2:00 O'clock.

The Court: You may proceed.

Mr. Foster: Before the next witness is called, your Honor, I want to offer into evidence some exhibits that were marked during the testimony of Professor Clapp, and those include Defendants' Exhibit GG for identification which, the court will recall, was a drawing of Defendants' Exhibit of the same letters; and also the model which was marked Defendants' Exhibit II for identification. I at this time offer into evidence as Defendants' Exhibit II and ask if I may have the permission of the court and plaintiffs' counsel to have the gauge removed from the formal exhibit. I think it adds very little to it and the gauge can be used for other things.

Mr. L. S. Lyon: With the understanding that that gauge or a similar one will be produced at any time in the progress of the case where it becomes material.

Mr. Foster: Oh, yes. And the photographs, your Honor, show the gauge present.

The Court: Very well. The gauge will be removed, with the understanding indicated. The two exhibits may be received into evidence for the purpose of explaining the testimony of the witness Clapp.

[Note: Defendants' Exhibit GG will be found in the Book of Exhibits at page 1563.]

Mr. Foster: In the stipulated testimony of Mr. Benson [1548] I asked and there were marked for identification the two drawings, Defendants' Exhibits LL and MM, and may they be received into evidence?

Mr. L. S. Lyon: I would like to have that reserved until we have reached the point of the stipulation in regard to cross-examination. We have not had a chance, getting the transcript this morning, to read the rather long statement of his testimony.

The Court: Very well; let that be done tomorrow morning. Sometime tomorrow we are going to determine that matter. [1549]

* * * * *

Mr. Foster: There was one other exhibit. I have had re-typed on legal size, numbered paper the requests of defendants' for admissions filed April 17, 1944 and plaintiffs' sworn statements in response thereto, dated April 25, 1944, which were formerly offered as Defendants' Exhibit T, and I ask that these be received as Defendants' Exhibits.

The Court: They may be substituted, subject to any corrections which may develop.

Mr. Foster: Should I file one or two copies, your Honor?

The Court: Two; one for the court and one for the files.

Mr. Foster: Professor Clapp at the noon recess stated to me that he was afraid that in some of his answers to some of the questions this morning he may have given answers that were either incorrect or misleading. The questions were directed to the subject of thermo-dynamics, a subject to which he has given no study in recent years; and he asked me if he could have the court's indulgence for him to read his questions and answers and, if necessary, the first thing in the morning call the court's attention to any corrections.

The Court: He may do so. In the meantime, we will just take Mr. Wells so as to accommodate him.

Mr. Foster: Thank you.

Mr. Miketta: Before I put Mr. Wells on the stand, your Honor, I notice that the Defendants' Exhibit U, which is the [1550] defendants' request for admissions of 1942, was introduced for identification about a week ago. It has been re-typed and I have handed copies of the re-typed requests and admissions to counsel and also to the clerk. I would like to offer that into evidence at this time.

Mr. L. S. Lyon: It is my understanding that your Honor has reserved a decision on that matter.

The Court: Yes; I think there were a number of questions there that we shall have to thresh out. The

point, so far as the law is concerned, seems to be comparatively simple. There were certain questions asked which were objected to as not being relevant or material, or both, to the issues then involved. The admissions were made subject to the right to object at the time of the trial. No attempt was made by counsel for the plaintiffs to make objection to the form of the request before the court or to have the court rule upon the matter.

Subsequently a counterclaim was filed, and it may be that the admissions not relevant in the state of the pleadings at the time they were made become relevant to the issues claimed by the counterclaim. The best rule of law seems to be that admissions made under those circumstances are admissions for any purpose during the progress of the trial. That has been decided by one of our Circuits, and I think it is a sound rule of law.

While there is some difference of opinion in the practice [1551] in coming into court and objecting to requests for admissions, I personally feel that the powers of the court are sufficient to provide a remedy in the event superfluous or impertinent matter is covered; and I am presently of the view that the plaintiff is now estopped to deny the admissions, if they are material under the counterclaim. We will not take the time now to go into those individual questions, but before the offer is finally accepted the court will have to rule upon each one of the requests separately. Some of them may still not be relevant to the issues of the case. We will have to determine that when the time comes.

Mr. Miketta: Very well, your Honor. Mr. Wells, will you please take the stand? [1552]

E. P. WELLS,

recalled as a witness by and on behalf of the defendants, having heretofore been duly sworn, testified as follows:

Direct Examination.

Q. By Mr. Miketta: Mr. Wells, are you familiar with the construction of the H.P.M. press located at defendants' plant at Niland? A. Yes.

Q. I believe you described the essential elements of that press during your prior testimony, is that correct?

A. Yes.

Q. Are you familiar with the construction and the essential features of the Frick press, located at the defendants' plant? A. Yes.

Q. Have you examined British patent No. 7,436, issued in 1895 to Elworthy, which is Defendants' Exhibit EE-27? A. Yes, I have.

Q. Have you also examined United States patents Nos. 338,034, Defendants' Exhibit EE-1; patent 876,352, Defendants' Exhibit EE-7; patent 1,018,568, Defendants' Exhibit EE-9; and patent 1,288,255, Defendants' Exhibit EE-12? A. Yes, I have.

Mr. Miketta: I hand the clerk a tabulation, and ask that it be marked for identification.

The Court: It may be so received. [1553]

The Clerk: NN.

[Note: Defendants' Exhibit NN will be found in the Book of Exhibits at page 1579.]

Q. By Mr. Miketta: Mr. Wells, have you compared the structural elements of defendants' machines, that is, the H.P.M. and the Frick presses, with the structures of those prior patents to which you have referred in your last two answers? A. Yes.

(Testimony of E. P. Wells)

Mr. L. S. Lyon: If your Honor please, I object to testimony of this witness on prior patents, as having already been covered by Dr. Clapp. It is cumulative and violating the rule limiting a party to a single expert in experting prior art patents. As I understand the rule, two experts will not be allowed to expert the same prior patent.

Mr. Miketta: May it please the court, this is a slightly different situation. in that Mr. Wells, as I stated just before adjournment this noon, is simply calling attention to the construction and structural features of the defendants' presses and the presence or absence of those structural elements in a limited number of prior patents. He is not comparing them, or in any way trying to show similarity between those prior patents and the patent in suit, which is a different subject.

The Court: I think that this is a different situation. I have had it up several times before. The prior witness did not attempt to expert the defendants' devices, nor did he testify with regard to them. He did testify with regard [1554] to the characteristics of the devices indicated by the prior art patents. It is my understanding that Mr. Wells made some analysis of the defendants' devices, if I remember correctly, and he was told to hold himself available to come back on the stand, so that I don't feel that this is violative of the rule in that regard, provided he is confining himself fundamentally to the defendants' devices.

Mr. L. S. Lyon: Then I call your Honor's attention to the comparison between what appears on the exhibit that has been handed up for identification, which has been stated to be what they want to show by this wit-

(Testimony of E. P. Wells)

ness as regards all of the prior art patents, the five appearing thereon, and what Professor Clapp testified to on Exhibit FF. It is identically the same material; it is cumulative. I don't see why we should go over it again and examine another witness in regard to it. It is exactly the same thing; the same legends. The only difference is, whereas this present exhibit for identification purports to show the elements there by the affirmative word "yes", Professor Clapp went further and said "yes" and put what they are. Certainly everything on this exhibit for identification, except the material referring to what is in the defendants' presses, is exactly a repetition of what has been put in evidence by Professor Clapp.

The Court: I want counsel to avoid duplication. Of course, I haven't them before me in evidence yet. I don't |1555| know what the testimony is going to divulge. The thing I am interested in, so far as this witness is concerned, is not a rehash of what Dr. Clapp has testified about, but the relationship to the defendants' devices. If you stick to those you will probably be in reasonably safe territory.

Mr. Miketta: That was the purpose of calling this witness, your Honor.

Q. You have compared, Mr. Wells, the structural elements of defendants' machines with these patents, is that correct? A. Yes.

Q. I have handed you Defendants' Exhibit NN, and ask, does this summary correctly show the results of that study? A. Yes, this was prepared by me.

Q. Will you state briefly, please, what is shown on this summary?

(Testimony of E. P. Wells)

Mr. L. S. Lyon: If your Honor please, I don't think that is a proper method of proof.

The Court: Objection sustained. [1556]

Q. By Mr. Miketta: I making this study, Mr. Wells—

The Court: Never mind about the study. Get down to the fundamentals themselves. Take your patents, one after another, and have him explain it so it may be subject to cross-examination. It will take a little more time, but I think the objection is sound.

Q. By Mr. Miketta: Mr. Wells, speaking of the Frick press, what are the essential structural elements that you find in that press?

A. The press has a chamber or mold or container—

The Court: Let me ask you this, to save time: As I understand it, there are no mechanical differences between the Frick press and the others; the only difference is that one is turned over. That makes no difference in the mechanical operation of the device, does it?

A. With perhaps one exception; the H.P.M. press is not used to eject the block from the press, but the block is dropped out of the press, whereas in the Frick press it is ejected by the plunger. That is the only main fundamental difference.

The Court: Yes, because one works by gravity and the other, you have to have something to push it?

A. Yes.

The Court: Let us just deal with a press of this type. We can keep that distinction in mind. It is very clear to me. It does not interfere with the mechanical [1557] operation of these things; just a different method of ejection.

A. Yes.

(Testimony of E. P. Wells)

The Court: One is by gravity and the other requires a little extra force.

* * * * *

Q. By Mr. Miketta: Very briefly, Mr. Wells, will you please state just as a summary the essential elements which make up the structure of either the Frick or the H.P.M. press, or both?

A. It has a chamber for the formation of solid carbon dioxide, a closure lid on the chamber, and means for opening the chamber, a supply pipe, an inlet, and an outlet pipe for fluid. It has a pressing plunger, means for removing the plunger. Those are the elements.

Q. I call your attention to British patent 7,436, of 1895 to Elworthy, Defendants' Exhibit EE-27. Do you find in this patent all of the essential structural elements which are also found in the defendants' presses? [1558]

Mr. L. S. Lyon: I object to that as cumulative; exactly that testimony was given by Professor Clapp. Your Honor will remember he explained the Elworthy patent, and then at the conclusion of his explanation, in his typical fashion said: Now, summarizing, the patent shows so and so.

The Court: I think that is true as an ultimate result; yet there is a distinction here, in that he is having express reference to the defendants' devices. It is very hard to draw the line. You may answer.

A. I find all of the elements which I mentioned just previously, in this patent, with the exception, perhaps, that the plunger does not eject the block. The means for opening the chamber is manual, instead of hydraulic, as in the defendants' press.

(Testimony of E. P. Wells)

Q. I call your attention to patent 876,352, which is Defendants' Exhibit EE-7, and ask whether you find all of the essential elements of the defendants' machines in this prior patent.

Mr. L. S. Lyon: Same objection, your Honor.

The Court: Same ruling.

Mr. L. S. Lyon: I would like to have your Honor look at Exhibit FF to see the same title on the exhibit, and the same information.

The Court: I know.

Mr. L. S. Lyon: It took considerable time on cross-examination to bring out the differences and the remoteness [1559] of the uses, the remoteness of the function of these things. I don't know whether this evidence is being offered to contradict or change the effect of Professor Clapp's testimony, or whether it is being gone into cumulatively.

The Court: Objection overruled. It may be that that will be the ultimate result; maybe not. It is like an objection to a question which requires a no or yes answer. If the answer is yes, it makes all the difference in the world, but it may make no difference if the answer is no. Suppose he says no. They would have a right to examine him. It may be that he won't. In that event no harm is done.

Mr. L. S. Lyon: Except we have to repeat Professor Clapp's cross-examination with this witness.

The Court: No. Overruled.

A. From an examination of this patent I find that each one of the structural elements is duplicated in this device that are contained in defendants' presses, as mentioned.

(Testimony of E. P. Wells)

Q. Just to clarify the record,—in making these comparisons, or when you state that every structural element of this patent, Exhibit EE-7 is to be found, or is contained in the defendants' presses, to what are you limiting yourself in "everything",—do you include all the nuts and bolts?

A. No, just the elements which I mentioned previously as making up my report or analysis. [1560]

Q. Your report, referring to Exhibit NN?

A. Yes. The chamber lid, means for operation, and inlets and outlets, plunger, and means for moving the plunger.

Q. I want to call your attention particularly to the Cartier patent, No. 338,034, which is Defendants' Exhibit EE-1, and ask you to compare that showing with the machines used by the defendants.

Mr. L. S. Lyon: Same objection.

The Court: Same ruling.

A. This patent shows all of the same list of structural elements, with the exception of the supply or inlet pipe, which is not contained in this patent, but all of the operating parts and chamber are there.

Q. Will you now refer to patent No. 1,018,568, which is to Julius, Defendants' Exhibit EE-9?

A. This patent has all of the elements of the defendants' presses, with the exception of perhaps the closure lid, which is a matter of degree, perhaps, because the cylinder valve acts as a closure lid against which the pressure of the screw can be directed to form a block of snow or ice. All of the other elements are there.

(Testimony of E. P. Wells)

Q. Is that the reason why you have placed a question mark in that square which is intersected by the column B, and patent 1,018,568, appearing in the left-hand column?

A. Yes.

Q. Will you please direct your attention to patent [1561] 1,288,255, Defendants' Exhibit EE-12, of the patents to Stastney?

Mr. L. S. Lyon: May I have a ruling that my objection can stand to all of this line without repetition, your Honor?

The Court: The same objection as to each one of them.

A. This patent has every element which has been listed in my analysis here as being the principal elements of the defendants' presses; the means for opening the chamber is manual instead of hydraulic, but nevertheless there is a means for opening and removing the material that has been pressed.

* * * * *

Q. By Mr. Miketta: In the defendants' machine, Mr. Wells, are the pressing plungers movable within a chamber? A. Yes.

Q. Do you find the same relationship between chamber and piston in these prior patents?

Mr. L. S. Lyon: The same objection.

A. Yes; in all of them.

The Court: Objection overruled. The answer may stand. [1562]

Q. By Mr. Miketta: In the defendants' presses what is the function of the inlet pipe?

(Testimony of E. P. Wells)

Mr. L. S. Lyon: That was fully answered when the witness was on the stand before. There is no issue about it, or it calls for no more evidence that I know of.

Mr. Miketta: I only have one or two more questions and I think we would expedite matters.

The Court: What is that question?

(Question read by the reporter.)

The Court: Objection overruled.

A. The purpose of the inlet pipe is to introduce carbon dioxide liquid for making solid.

Q. By Mr. Miketta: Will you please state whether or not the function of the inlet pipes which you have indicated in your analysis of the British patents and the other patents mentioned on Exhibit NN—

A. All of those—

Mr. L. S. Lyon: Wait just a minute. Is that question complete?

Mr. Miketta: May I hear that question, please? [1563-1564.]

(Question read by the reporter.)

Q. (Continuing) Is to admit a liquid?

Mr. L. S. Lyon: I object to that on the ground previously stated. It has no relation to the defendants' machine. It is purely, it seems to me, under that guise, attempting to go back and thresh the same straw that has been threshed by Professor Clapp.

The Court: Yes; I think that is true. I think we have had enough evidence for the court to know what those inlets are for, and you have proved what they are for in the defendants' device. The objection will be sustained.

(Testimony of E. P. Wells)

Q. By Mr. Miketta: The Exhibit NN correctly summarizes the results of your study, does it not?

Mr. L. S. Lyon: I object to that as not a proper method of proof. This kind of a summary is not admissible.

The Court: The objection is sustained.

Q. By Mr. Miketta: Did you prepare this summary yourself, Mr. Wells? A. Yes.

Q. And it was typed under your direction?

A. Yes; it was.

Mr. Miketta: I ask that it be introduced into evidence as Defendants' Exhibit NN.

Mr. L. S. Lyon: Objected to on the same grounds and as cumulative, your Honor.

The Court: It may be received only for the purpose of [1565] explaining the testimony of this witness.

[Note: Defendants' Exhibit NN will be found in the Book of Exhibits at page 1579.]

Mr. Miketta: That will be all.

Mr. L. S. Lyon: Your Honor, I move to strike the testimony of the witness on the ground that it is cumulative and violates the rule as to one expert, except as to such questions as relate to defendants' presses.

The Court: In the main, I think the motion is sound but I think it is very difficult to segregate the elements where it is sound in itself and where it is not. The court can't always tell. For instance, an attorney asks a witness: Did you on a certain date have a conversation with Mr. X? Mr. X is not a party to the proceeding; he does

(Testimony of E. P. Wells)

not bind anyone. If the testimony is admitted, it is clearly hearsay, if objection is made. I can't tell. If the answer is "no", that ends it; if the answer is "yes", then follow it up with the detail, and then the objection may be made that it is hearsay and the objection would be sound.

In so far as this testimony is simply experting the patents in the prior art, it is cumulative and violates the understanding that we were to have one expert only for each subject matter. In so far as there may be a distinction between the prior art and the defendants' devices, it is proper, but it is too much trouble to separate them. So the motion will be denied, but the court will take into consideration the testimony when the time comes and will not give it any extra force due to the cumulative nature of it. [1566]

You may cross-examine, without prejudice, if you wish to.

Mr. L. S. Lyon: I do not think, in view of the limited use that can be made of this witness' testimony, that I should take up the time of the court cross-examining, because I would just be going over the same things that I went over with Professor Clapp.

The Court: I think that is true. I rather suspected that this was where we were going to come out, but at the same time I had to hear the testimony. Anything further?

Mr. Miketta: That will be all, your Honor.

The Court: May Mr. Wells be excused?

Mr. Miketta: Yes. [1567]

WALTER LEE HOOD,

called as a witness on behalf of defendants, being first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

A. Walter Lee Hood. [1569]

* * * * *

Direct Examination.

Q. By Mr. Miketta: Mr. Hood, where do you reside?
A. Houston, Texas.

Q. What is your present occupation, Mr. Hood?

A. I am superintendent for W. L. Jones & Company, dredging, towing and distribution of sand and shell.

Q. What technical training have you had, Mr. Hood?

A. Well, I am a graduate of the chemical department of Washington and Lee University. I was with the Virginia Iron, Coal & Coke Company for several years, as in operations; and with the Carbide and Carbon Chemicals Corporation, on plant research, particularly on acetylene derivatives of natural gas; and with the Federal Die Stuff and Chemical Corporation, as assistant superintendent to the T. N. T. department, and later superintendent of the acid department, Nitric Acid manufacture; then with the Dry Ice Corporation of America as engineer, and then production manager.

Q. When were you employed by the Dry Ice Corporation of [1570] America?

A. About the first of April. I got on the job about the 10th of April, 1925.

Q. With whom had you been employed prior to that time?
A. Carbide and Carbon Chemicals.

(Testimony of Walter Lee Hood)

Q. When did you leave them?

A. The end of March of that year.

Q. At what plant were you first employed, that is, with the Dry Ice Corporation?

A. At Liquid Carbonic plant at Maspeth, Long Island.

Q. With what men did you come in contact at that plant?

A. At the plant, Mr. Martin and Fitzpatrick and another young engineer whose name slips me.

The Court: Is this the man to whom Mr. Martin referred in his testimony?

Mr. Miketta: Yes, sir.

The Court: By the same name?

Mr. Miketta: The Mr. Martin to whom you referred is Mr. J. W. Martin?

A. Yes, sir. I think Mr. Albee was the Liquid Carbonic superintendent at the time I went there.

Q. Had you worked with solid carbon dioxide before that time?

A. I had not. It was a new—I don't think many people had at that time, commercially.

Q. Will you please describe the apparatus for manufacturing [1571] solidified carbon dioxide which you found at the Maspeth plant when you first got there?

* * * * *

Q. Was this machine that you have just described operating when you reached Maspeth? A. Yes, sir.

The Court: Will you give that time a little more definitely, if you can?

A. Well, I left the Carbide and Carbon at the end of the month of March and moved my family from down

(Testimony of Walter Lee Hood)

there to [1572] New York, and took a few days to get settled. I think it took me probably a week or ten days.

Q. Sometime before the middle of April, 1925?

A. Yes, sir; some before the middle, I am sure.

Q. 1925? A. Yes, sir.

Q. That press was a horizontal press?

A. That press was a horizontal press; yes, sir.

Q. The cylinder was vertical?

A. The cylindrical hopper?

Q. Yes. A. Snow hopper; yes, sir.

Q. By Mr. Miketta: Were blocks being made on that machine when you arrived there about the 10th of April, 1925? A. Yes, sir; being made and shipped out.

Q. I show you Exhibit L, Mr. Hood, and ask if you recognize that? A. Well, diagrammatically.

Q. What does that represent?

A. I take it it represents that machine in a diagrammatic form.

Mr. Caughey: That is objected to.

Q. By Mr. Miketta: The machine you have just described? A. Yes, sir.

Mr. Caughey: Just a second. That is objected to as not definite enough, no foundation laid. [1573]

Q. By Mr. Miketta: Does this answer the description that you have just given of the machine which you first observed when you came to Maspeth?

A. Yes, sir.

The Court: I think that corrects the difficulties.

Q. By Mr. Miketta: Do you know what is meant by a Martin snow tank to which reference has been had during the trial on repeated occasions?

A. Well, I didn't know it by that name. I know of the snow tanks that were used there.

(Testimony of Walter Lee Hood)

Q. Will you please describe what you used?

A. Well, sheet metal cylindrical tanks, double-walled, with—

Q. By the Court: You mean a jacket?

A. Well, the outer was a complete tank; the inner tank had no top, excepting a canvas screen, backed by screen wire for strength.

Q. An air space between?

A. With a space between, with liquid injected into the central tank, the inner tank, and an external door going clear through into the inner tank, and the unsolidified gas coming through the screen on the top around between the jackets and out through a pipe running to the compressors.

Q. By Mr. Miketta: When did you first have snow tanks in operation at Maspeth, to the best of your recollection?

A. The best recollection I have on that is about six [1574] weeks after my arrival, probably the end of May or the first of June of 1925.

Q. Do you know why the snow tanks were installed at that time?

A. Because of the desire of the customers for a different form rather than a square brick. They wanted a large brick and also wanted cylindrical ice to make a round disc.

Q. How did you make the round disc?

Mr. Caughey: Just a second. That is objected to unless he is speaking from his own knowledge.

Q. By the Court: Are you speaking of your own knowledge that that was so?

A. As handed me by the sales department, that is what they wanted, the customer wanted; yes, sir. I did

(Testimony of Walter Lee Hood)

not contact the customer myself. The sales department did, and told me that is what they wanted and we had to make that for Schraffts?

Mr. Caughey: I move to strike the answer.

The Court: It may be stricken.

Q. By Mr. Miketta: In what form, or how did you utilize this snow in the snow tanks when they were first put in around the first of June, 1925, Mr. Hood?

A. For making cylindrical blocks approximately 3 or 3½ inches in diameter. I think it was 3.

Q. And how did you do that?

A. And they were sliced into little discs. [1575]

Q. How did you make these little cylindrical blocks of dry ice?

A. This snow was taken out of the tanks and through a funnel into a pipe, a section of pipe, and tamped down in them, and then put under a toggle press which pressed it into a block.

Q. Did you make any other blocks besides these round cylinders?

A. We made the 10-inch cubes at the same time.

Q. How did you make those?

A. In the same general manner, by putting the 10-inch mold right in front of the door of the tank with a funnel connecting it to the door of the tank and shoveling the snow from the tank down into the mold and tamping it in by hand, then putting it on a hydraulic press and pressing it into a cube.

Q. When you speak of a funnel there will you describe what that looked like and how it was used?

A. Well, in the 10-inch size, of course, the bottom was the 10-inch square, flat sides went up, oh, perhaps

(Testimony of Walter Lee Hood)

6 inches on each side, with a little flare, and the back went up possibly 8 or 10 inches, possibly a foot, to go under the lip of the door of the tank, under the flange of the door of the tank, so that no snow would be lost in the compressor, and the sides protected it as much as possible from the loss of the air or snow. It was a sheet metal. [1576]

Q. In other words, it was more like a chute than—

A. Yes; it was more like a chute. We called them funnels.

Q. And it led from the door of your snow tank into the mold, is that correct?

A. Into the mold; yes, sir.

Q. How would you get the snow out of the snow tank? A. A short-handled shovel.

Q. Was the snow powdery or loose, or was it chunky and solid?

A. Oh, it was like semi-packed snow, natural snow. It had to be dug out in most cases. Occasionally it would drop down. When you dig out, it would drop down and a little bit would kick out. In most cases it had to be dug out.

Q. By the Court: As I understand it, there was no marked drop from the snow chamber to the compression chamber?

A. Not without some assistance. He may have taken the shovel and dug down and scraped it in there and then let it fall.

Q. You did not have to take it out from the door and then drop it in at all; it went right down?

A. It went right down; yes, sir.

(Testimony of Walter Lee Hood)

Q. But it had to be assisted manually?

A. It had to be assisted manually.

Q. By Mr. Miketta: Did you ever sell any blocks made at that Maspeth plant? [1577]

A. Oh, pick-up orders that would come in; yes. People in different places would send in for small amounts, send their drivers in and I would actually make the sale there at the plant. Of course, I sent out, I made the shipments on all the sales and sent them out.

Q. But on those so-called pick-up sales do you remember of making them on the blocks that had been manufactured on the unitary machine of Exhibit L?

A. Yes.

Q. And that was before the snow tanks were put in?

A. Before they were put in.

Q. Do you recall the price which you were getting for dry ice at that time?

A. I think it started at 10 cents a pound in the first stages.

Q. You sold it by the pound? A. Yes, sir.

Q. And not by the block?

A. By the pound always as long as I was there.

Q. Do you remember the names of any of the large customers for solidified carbon dioxide that was made on these machines that you have just described?

A. On the first machines?

Q. Yes.

A. Columbia Dairy or Pharmacy—I don't remember which. The Columbia part is right. [1578]

Mr. Caughey: Your Honor, I am assuming that all these are concerns that he actually made sales to himself.

(Testimony of Walter Lee Hood)

The Court: Yes; they must be, otherwise they would be hearsay.

A. I consigned the stuff to them. I didn't make the sales. The sales department handled that.

Q. By the Court: You shipped it?

A. I shipped it out of the plant to them.

The Court: Go ahead.

Mr. Miketta: May I modify the question?

Q. Do you remember the names of the larger customers to whom you had shipped blocks made on this small unitary machine?

A. As I stated, this Columbia Pharmacy or Dairy—I don't know which it was; Schraffts; one or two—several restaurants and confectioners, though I don't recall their names; and we were shipping regularly to Canada, Montreal.

Q. To whom were you shipping in Canada?

A. I don't know the name. I don't recall the name. I know we had a regular Canadian shipment daily.

Q. Was there more than one unitary machine at Maspath before the snow tanks were installed, in the first of June, 1925, Mr. Hood?

A. Yes; I am sure the second one had been delivered before the snow tanks were put in, and possibly a third.

Q. By the Court: Purely from curiosity, how did you [1579] package this product at that time for shipment to places like Montreal?

A. First, in corrugated container, then in a larger container with sawdust and shavings between.

Q. At first you did not have any sawdust packing on the outside?

(Testimony of Walter Lee Hood)

A. No. We used the two containers, a smaller container in which the blocks were packed therein, and then placed in a larger one, with the sawdust and the shavings around as insulation; and they were very unsatisfactory containers.

Q. Too much loss in transit?

A. They were not strong enough to carry the load. They were always breaking out on us.

Q. By Mr. Miketta: You are referring to the corrugated boxes?

A. Yes. The express company was always after us until we changed. [1580]

Q. Do you remember whether any modifications were made in these unitary machines to which you have referred from the form in which you first saw the machine that you identified on Exhibit L?

Mr. Caughey: He only referred to one unitary machine, as I recall. That was in the operation.

The Court: The time should be made more definite. Revise your question.

Q. By Mr. Miketta: Do you remember whether any modification was made in that machine, which you first saw at the Maspeth plant, about the 10th of April, 1925, and which you have identified on Exhibit L?

A. Yes, sir.

Q. Will you please state what those modifications were, and when they were made?

A. I can't state definitely when they were made. They were made progressively.

Q. When was the first change you recall?

A. Probably within two or three days after I arrived there. We removed the cylinder, a portion of the

(Testimony of Walter Lee Hood)

hopper, and used only the conical bottom. Then the conical bottom was removed, and we just used the small outlet to the compression cylinder, each time moving the screen downward and lowering the injection and outlet, the reason for this being that we had a great deal of trouble getting the snow from the hopper into the compression chamber. [1581]

Q. So the first modification consisted in removing the upper cylindrical solidification or snowing chamber?

A. Yes, sir.

Q. But retaining the lower conical portion; is that correct?

A. Yes.

Q. When you removed that cylinder, where did you place your liquid injection line?

A. Just about the bottom of the funnel, the conical hopper.

Q. Then, as I understand your testimony, a subsequent change, consisting in removing the funnel altogether, and introducing the liquid CO₂ at some point below that at which it had formerly been connected?

A. Yes, just above the compressing chamber itself, and—

Q. You said something about a screen.

Mr. Caughey: I don't think the witness finished.

A. I possibly should not have said what I was going to say. I stopped.

The Court: That is a unique experience for a witness.

Q. By Mr. Miketta: Was it responsive to the preceding question, Mr. Hood?

A. It was just carrying on the thing down. In other words, I would say the screen right above it, at the flange where the funnel had been connected on, we put an in-

(Testimony of Walter Lee Hood)

verted [1582] screen, pyramidal or conical shaped, and also turned the injection nozzle down so it injected into the chamber where it was compressed from that point, and finally got the injection nozzle right into the chamber itself through the side thereof.

Q. Over what period of time were all these changes made, to the best of your recollection?

A. During the month or six weeks prior to the installation of the snow tanks, and possibly it overlapped a little with the installation of the snow tanks.

Q. You say the snow tanks were installed somewhere around the first of '25?

A. Yes, sir.

Q. So that these changes were made within an approximate six weeks' period from the time that you got there and the time the snow tanks were put in, or thereabouts?

A. Possibly a little overlapping; it may have taken two months to make all these changes, and we tried out each one.

Q. Do you know how high a pressure you developed in these pressing chambers?

A. In that machine, I do not.

Q. Did you have a pressure gauge on it?

A. No.

Q. When you started injecting liquid CO₂ directly into the side of the compression chamber do you distinctly [1583] remember that being done?

A. Yes, very distinctly.

Q. Did you have anything to do with that personally?

A. I don't know that I drilled the hole, but at least I directed it.

(Testimony of Walter Lee Hood)

Q. Do you remember the drilling or having a hole drilled into the side of the chamber? A. Yes.

Q. Where were all these operations carried out? Where were these machines located in the plant of the Liquid Carbonic Company?

A. I don't remember my directions well enough to say which corner of the compressor room of the Liquid Carbonic plant it was, but it was in one of the corners.

The Court: On the ground floor?

A. On the ground floor, yes, sir.

Q. By Mr. Miketta: Was it a separate room, or was it a part of a larger area?

A. It was part of the whole compressor room, the main plant.

Q. Could visitors observe the operations being carried out?

A. There was nothing to keep them from it. Everybody who came into the office of Liquid Carbonic had almost to brush by it, because the entrance to their office was right next to it. It was an inside room in the plant from [1584] this same big room.

Q. Did you have any visitors? A. Oh, yes.

Q. Did you have many of them, or just a few?

A. We did not have so awful many, but they were coming continuously.

Q. Do you remember whether any of the officials of Liquid Carbonic saw the apparatus and observed its operation? A. Yes, Mr. Levedan and Mr. Brown.

Q. How do you spell that?

A. L-e-v-e-d-a-n. Pete. It was a-n or o-n; I am not sure which.

(Testimony of Walter Lee Hood)

Q. Who is Mr. Brown?

A. He was afterward President of the Liquid. I don't know what his capacity was at that time, but it was near the top. He must have been vice-president. At that time there was a little Scotchman who was president. I don't remember his name. He was present there on at least one occasion.

Q. Did you ever give anybody instructions not to let visitors into the plant?

A. Certainly I did not. I never had anything of that kind, or gave any.

Q. Mr. Hood, were these $3\frac{1}{2}$ by $3\frac{1}{2}$ inch blocks that you described, light and white, or were they grayish or translucent? How could you describe them? [1585]

A. In the main they were white. Occasionally they were translucent, or had translucent streaks, or striations.

Q. Will you please tell us whether you had any difficulty in running that machine, after you had drilled the hole in the side, and were injecting liquid directly into the pressing chamber?

A. Oh, yes, we had trouble with it all the way through. We produced with it, but we had mechanical troubles, as you do with most new machines, I think.

Q. What sort of a drive did you have for the plunger?

A. A motor drive, through belts.

Q. Did it always run at a constant speed, or did you vary it?

A. Oh, no, we varied that speed; slowed it down materially; generally worked down toward a slower movement.

Q. When you were injecting liquid carbon dioxide directly into the pressing chamber, will you describe the op-

(Testimony of Walter Lee Hood)

erations as they would be carried out? In other words, assuming that you are starting up this machine with liquid being injected directly into the pressing chamber, to the best of your recollection what were the operations?

A. You would have your end closed with your C clamp, and turn on your liquid and open the return, and we tried it both running the machine continuously with a slow movement, and also intermittent, allowing the snow chamber to accumulate, and started the motor. We got the best results by [1586] the intermittent operation, but in doing so had a lot of trouble in moving the machine and had to put a vent into the cylinder, which helped us a whole lot on that.

Q. What do you mean, that you had trouble in moving the machine? Were you moving the entire machine?

A. No, trying to get it started to make its cycle, and compressing the blocks.

Q. Where was this vent placed, which you refer to?

A. It was put into the compression chamber, leading out of the compression chamber.

Q. What would you do with that then?

A. Open it before starting the plunger to the machine, to compress the block. In other words, we did that to relieve the pressure so that we could compress it. There wasn't power in our machine to handle it otherwise.

Q. After you had compressed this snow against that C clamp, what did you do with that?

A. Removed the C clamp and the plate, and kicked it out.

Q. Kicked out the block, and then you would start all over again by putting the C clamp on?

(Testimony of Walter Lee Hood)

A. We did in some instances, and in some instances we put a longer nozzle on, and extruded the block, and allowed the block, after it was formed to seal it.

Q. To the best of your recollection, was an operation such as you have described carried out before the snow tanks [1587] were put in there, around the first of June, 1925?

A. Most emphatically.

Q. When you were making the 10 by 10-inch blocks from snow made in the snow tanks, how did you compress that snow?

A. On a vertical hydraulic press.

Q. How was that press driven?

A. First by a little hand hydraulic pump; later motor driven.

Q. How much pressure did you have in that hydraulic press?

A. As I remember, 600 to 800.

Q. Did you ever have any trouble with the molds?

A. A great deal with the molds breaking.

Q. Do you mean they broke on pressing?

A. While pressing. We started, I think, at about less than one-half-inch steel. We got up to half-inch, and then banded them.

Q. You put bands around them?

A. Put bands around them to reinforce them. Even then they broke quite often.

Q. Mr. Hood, I show you Plaintiffs' Exhibit 6, and ask you if these horizontal members appearing on the mold are bands such as you have described.

A. They are reinforcing bands, yes. [1588]

Q. Do you recall what use Schraffts made of the blocks which you manufactured and sold to them?

A. In what they called a carry-home ice cream package, in the refrigeration of ice cream.

(Testimony of Walter Lee Hood)

Q. What size blocks did they use on that?

A. The $3\frac{1}{2}$ -inch cylinder cut into discs—3 or $3\frac{1}{2}$, I think it was; probably 3-inch. Those discs, as a rule, were about one inch in thickness.

Q. Do you recall any advertising program for the sale of dry ice, going back to 1925?

A. By us or by a dealer? Schrafft's had their own. Of course, that was primarily to sell ice cream; not our ice. But they demonstrated it in their windows; piled up the blocks in their windows.

Q. Do you have a clear recollection of that?

A. Very clear. I saw it, and I had an amusing incident, when some person I met found I was connected with it, and told me: Oh, yes, they had been in there and the young lady in Schrafft's told them it was poison, and they had to be very careful with it. I immediately got in touch with our sales department, and told them they had better go over there and correct that impression.

Q. When did this occur?

A. In the very early stages; probably in April.

Q. You weren't making 10-inch blocks in April?

A. No; they used the smaller ones first. [1589]

Q. Schrafft's were using $3\frac{1}{2} \times 3\frac{1}{2}$ blocks first, and then later on they were using the larger blocks?

A. Yes.

Q. How long did you continue using these unitary machines for the solidification and compressing of carbon dioxide?

A. Oh, possibly a couple of weeks, or a little more after we started the installation of the snow tanks; I would say well into June; possibly through June.

(Testimony of Walter Lee Hood)

Q. Did you discard these unitary machines after June, 1945?

A. We discontinued their use, because the entire customer demand was for the large block and the discs, and we couldn't make those sizes on that machine, so they were simply shelved for the time being.

Q. Why didn't you build a large machine for making the 10 x 10 blocks?

Mr. Caughey: If he knows.

A. Time and money; lack of time and money.

Mr. Caughey: I mean of his own knowledge.

The Court: Do you know of your own knowledge?

A. We were desperately short of money. We knew it, and couldn't go forward; and also the time element.

Q. By the Court: You couldn't get the money within the time you needed it?

A. No, we couldn't, and build the machine in time, even [1945] if we had the money; we would have had to go through the snow tank stage, had we had the money in time.

Q. In time for what?

A. To build the machine; to build the larger blocks.

Q. What time were you looking to, the Fourth of July, or Christmas, or what?

A. They were demanding ice by then.

Q. By Mr. Miketta: Was the demand for dry ice growing all the time?

A. I don't think there was any time, except possibly in the depth of winter, that we weren't behind in our sales. Rationing started in those days with us, because we had to ration it to customers.

(Testimony of Walter Lee Hood)

Q. Did you throw these unitary machines away, discard them, sell them to the junk man, or what happened to them?

A. One of them I definitely recall was kept in the building there at the Liquid, quite some time. A second one was just outside the door, alongside the building. We did not discard them. We kept it inside the building, one of them, very much in the way too.

Q. These machines were visible to anyone who went by; they weren't boxed up, covered up?

A. Covered with grease, to protect them.

Q. Why did you do that? A. To protect them.

Q. What were you saving them for? [1591]

A. We expected to use them, at least so we were told by our general manager, Mr. Gray, and cautioned to take care of them.

Q. How long was the production of solidified carbon dioxide continued in Maspeth?

A. Well, to the best of my recollection, approximately a year after I got there; maybe a little longer; into the summer of '26.

Q. Then where did you go? [1592]

A. To the General Carbonic plant at Sixth Street and East River, Long Island City.

Q. Do you have a distinct recollection of spending the winter of 1925 and 1926 at Maspeth?

A. Yes, very definitely.

Q. Any particular incident?

A. I know how the snow used to bank up on my car standing there, and I burned a hole in my brand new overcoat getting into the plant one morning.

Q. That was during the winter of 1925 and 1926?

A. Yes.

(Testimony of Walter Lee Hood)

Q. How did you manage to burn a hole in your overcoat?

A. I stood away from the wind, and lit my pipe, and dropped some fire into it.

Q. Do you know why you moved over to the General Carbonic plant at Sixth Street and East River?

A. Because of Liquid's inability, or lack of desire, to furnish us with the amount of liquid we needed, and it interfered with their production, and selling this liquid. They virtually kicked us out.

Q. In other words, you were using too much liquid for your dry ice?

A. Yes, sir; we wanted more than they were willing to supply us.

Q. Did you move all of your solidification equipment from Maspeth over to General Carbonic? [1593]

A. We moved all the equipment that we used, yes. We moved all of our equipment away from Liquid, from Maspeth.

Q. Do you have a distinct recollection of loading up this unitary machine from the Maspeth plant?

A. Yes; I have a very distinct remembrance of loading it.

Q. What sort of a truck were you using?

A. An antiquated White.

Q. Did you have charge of that moving operation?

A. Yes.

Q. You say this move occurred sometime about a year after you had come to the Maspeth; is that right?

A. It was during the spring or summer of 1926, as I remember it.

Q. Do you remember whether you took your snow tanks over to the General Carbonic plant? A. Yes.

(Testimony of Walter Lee Hood)

Q. Whom did you meet at the General Carbonic plant when you first got there?

A. Mr. McLaren and his superintendent. I forget his name. An Italian. Tony, was it?

Q. What position did Mr. McLaren have?

A. Manager.

Q. Did you find any machines in existence at the General Carbonic plant when you first went over there, for the manufacture of solidified carbon dioxide? [1594]

A. No, sir.

Q. What machines for the making of solidified carbon dioxide did you use at the plant of General Carbonic when you first got there? A. Snow tanks.

Q. How did you press the snow?

A. In a vertical press. I don't recall whether we discontinued the 3-inch cylinder by that time or not. I think we had, but I am not sure of that.

Q. By the Court: You mean a separate vertical press?

A. Yes, we used a toggle press, a vertical press.

Q. You tamped it after you took it out of the snow chamber?

A. We tamped in the sections of pipe, and put it in the toggle press. I think that had been discontinued before we moved. I am not sure of that.

Q. What had been discontinued?

A. The manufacture of the 3-inch cylinder or disc. I think we were confining it purely to 10-inch tubes at that time; so I am not definite on that point.

Q. By Mr. Miketta: After you got to the plant of General Carbonic did you discuss the manufacture of blocks of solid carbon dioxide with Mr. McLaren?

A. Yes, definitely.

(Testimony of Walter Lee Hood)

Q. When did you do that?

A. I expect we did it every day or two during our stay [1595] there; certainly at first quite often.

Q. Within how many days after you had got there did you discuss that with him?

A. Well, if not the first day we started manufacturing, certainly the second or third, because it was under continuous discussion almost whenever he had time to come and visit us.

Q. He was stationed at that plant, wasn't he?

A. Yes. Of course, his office was in the other portion of the building, away from us.

Q. Did you ever meet Mr. Cole at that plant?

A. Yes.

Q. These discussions with Mr. McLaren, where were they held?

Mr. Caughey: Objected to upon the ground that no proper foundation is laid. We don't know who was present.

The Court: I suppose he is in the process of doing that?

Mr. Miketta: Yes, Your Honor.

A. We discussed it right there where we were working.

The Court: Who were present?

A. The men who were working for us, doing the actual work. Generally Mr. *McLaughlin* and myself, or possibly the superintendent, this Italian, whom I can't recall his name, was often with us. We discussed it on many occasions.

(Testimony of Walter Lee Hood)

Q. What did you discuss? What was the subject of these discussions regarding the manufacture of solid carbon [1596] dioxide?

A. Objections to the snow tank process which we were using, as in their minds we were wasting a great deal of gas.

Mr. Caughey: I object to that, and move to strike it. The question was what was the subject. If they want to go into the whole conversation, that is something else entirely.

The Court: Try and tell us as nearly as you can remember. If you can remember who said what, tell that. Did Mr. McLaren come in and say: Here, you rascals, you are using too much of our material; or what?

A. Rather we were wasting too much; when you opened the snow tank door, the residual gas in there gave a puff out into the air, and with the humidity around New York, it was quite visible, and made a big show. It was quite a loss. They objected to the loss.

Q. By Mr. Miketta: Who objected to the loss?

A. Mr. McLaren, and his superintendent. They criticized us for wasting gas, which, of course, we were doing, to some extent.

Q. What else was said?

A. They only comeback we had on that was that we had had machines which were self-contained, and did not waste it, and that when conditions would permit, we would go back to them.

Q. Did you describe those machines to Mr. McLaren and [1597] to this Italian?

A. Most certainly, because that was the only comeback we had to their objections.

(Testimony of Walter Lee Hood)

Q. Did you tell them how the machines were constructed?

Mr. Caughey: If your Honor please, I think he should repeat this conversation. We should not have merely questions at this stage of the proceeding.

The Court: As nearly as possible, tell us everything you can remember about these conversations. Manifestly, after this number of years you can't tell exactly what words you said, but, as near as you can remember, the subject matter of them.

A. That the old unitary machine was the only defense we had against their complaint of loss of gas. I told them we had done it; could do it; and we were going back to it.

Q. You told that to Mr. McLaren? A. Yes.

Q. Did you describe that unitary machine to him?

A. As we had used it, yes, I think we had.

Q. Was there one over there at the place?

A. I don't recall whether we took these machines there with us, or sent them back to the factory at Eppenbach's and stored them there. I don't remember whether we stored them. I remember loading them on, but I don't know at what point we stored them. I do remember one was stored at Eppenbach's, and possibly more. Eppenbach was the maker— [1598] Eppenbach Bros.

Q. What did you tell Mr. McLaren about the advantage of the unitary machine?

A. That it was unitary, enclosed, and therefore not exposed to the atmosphere, and did not lose the gas; that it went back into the system, and stayed in.

Q. What did he say to that?

A. I think he thought, why the devil don't you do it?

(Testimony of Walter Lee Hood)

Q. By Mr. Miketta: Mr. Hood, did you just give this sort of a description to Mr. McLaren, or did you describe to him just how these machines had been built?

A. I am sure that I gave him as definite a description as I was able to. As I said, that was the only defense we had against his complaint of loss of gas.

Q. Did you tell him it was horizontal, for example? I wish you would try and recall in as great detail as possible, what was said, and the extent to which you described the machine to Mr. McLaren.

A. As his Honor stated, I would hesitate to try to remember the words of the conversation at that time, but I am certain I, on many occasions, gave him as complete a description as I was capable of, as definite a description as I was capable of, and having used that, and being very familiar at that time with it, I think I must have given him a fairly good one.

Q. By the Court: Did you tell him where they were [1599] stored?

A. I am certain that Eppenbach, the maker, was mentioned, and the fact that there was one there, because certainly I would have been glad to have him see it, and show him what I was talking about. [1600]

Q. By Mr. Miketta: These conversations, you say, took place within a few days after you first moved to the General Carbonic plant, is that correct?

A. Yes, sir.

Q. And also conversations along those lines took place at other time? A. A great many times.

Q. How long did you continue your operations at the General Carbonic plant, Mr. Hood?

A. Approximately a year, as I remember.

(Short recess.)

(Testimony of Walter Lee Hood)

The Court: You may proceed.

Q. By Mr. Miketta: Mr. Hood, when did you first meet Mr. Cole?

A. It would be right hard to say. It was sometime, I would think, in the early months of our stay over at General, but it would be hard to put my finger on it.

Q. During these conversations with Mr. McLaren, which you have referred to, concerning the amount of gas which you were allegedly wasting, and the unitary machine, was Mr. Martin present?

A. I am sure he was present in some of these conversations, although when he was present I shifted it to him, to let him handle the burden of it.

Q. Was Mr. Martin your superior?

A. Yes, sir. [1601]

Q. Was Mr. Cole present at any of these discussions which you had with Mr. Martin, with or without Mr. McLaren being present?

A. I wouldn't say. I don't recall.

Q. Did Mr. McLaren or Mr. Cole at any time during your stay at General Carbonic tell you that they were working on a machine for solidifying and pressing carbon dioxide?

A. Not that I remember.

Q. During these various changes which you have referred to, during the months of April and May, of 1925, while you were at the Liquid Carbonic plant?

A. Do you mean changes in that machine?

Q. Yes. In that unitary machine, who directed those changes?

A. Mr. Martin.

Q. You had referred to an air vent?

A. A vent.

Q. In your testimony.

A. It was not an air vent; a vent.

(Testimony of Walter Lee Hood)

Q. Where did it go? A. To the air.

Q. It went to the air? A. Yes.

Q. I show you Defendants' Exhibit O, and ask you whether that correctly represents one of the early stages of that unitary machine? [1602]

A. I think my testimony as already given would say that, yes, sir; in other words, at the point where we used the funnel alone.

Q. And after you had removed the cylindrical upper portion, is that right? A. Yes.

Q. Now I show you Defendants' Exhibit P, and ask you whether that exhibit correctly shows the subsequent changes to which you have referred in your testimony?

A. Yes, each in step, as we moved downward, getting closer, until finally we got into the chamber itself.

Q. In other words, you moved the liquid injection inlet? A. We did, in the cylinder, down here.

Q. By "here" the witness is referring—

A. Into the funnel; then into the small neck above the machine where the funnel connects it.

Q. You are referring to Exhibit P?

A. At this stage to P; then, down into the cylinder itself.

The Court: Let the record show "this stage" is the No. 2 stage? A. Yes, sir.

Q. By Mr. Miketta: I also notice that in describing the operation of that unitary machine with the liquid injection taking place directly into the pressing chamber you had stated that at the end of that pressing operation the block [1603] was kicked out. What did you mean by that? What kicked it out?

A. The addition of more snow, and pushing it out by the next block coming up.

(Testimony of Walter Lee Hood)

Q. In other words, the kicking out force was the piston, is that right? A. Yes, sir.

Q. You referred to the presence of visitors in that plant. Were those visitors present there before or after the snow tanks were installed?

A. I would say both; before and after.

Q. I now would like to show you Plaintiffs' Exhibit No. 5, and ask whether you recognize that, and please state what it is.

A. That is the snow tank installation there at Maspeeth, and the toggle press on this end.

Q. You are referring to the left end?

A. I am referring to the lefthand end, in the foreground of the picture, and the hydraulic press at the far end of the platform, in front of the tanks.

Q. This is the toggle press which you employed in making the 3-inch cylinders?

A. Yes. Some of the empty shells are down there underneath it.

Mr. Miketta: The witness has referred to the left portion of Exhibit 5 in his last answer. [1604]

Q. Does this photograph show or indicate the position of the chute or funnel, to which you had referred in speaking of the movement of the snow from the snow tank to the mold? A. I think it is very plainly shown there.

Q. Will you please call our attention to where it is?

A. Frost-covered, right there. That outline in frost. Of course, there is gas there over it, and hides it to some extent. There is the funnel up under the lip of this tank, and going into the cylinder, the mold, connecting the two.

Mr. Miketta: May the record show that the witness has referred to an object protruding from the furthestmost snow tank door, shown in Plaintiffs' Exhibit 5?

(Testimony of Walter Lee Hood)

The Court: Extending to the right of that?

A. It really comes forward from it.

The Court: The picture seems to make it look that way?

A. Yes, sir.

Q. By Mr. Miketta: I understand from your testimony that sometime during the summer of 1927 you moved away from the General Carbonic, is that right?

A. I think it was during the summer of '27.

Q. Where did you move the equipment?

A. There was some overlapping, but we opened the plant at Yonkers, and then continued at General.

Q. The moving to Yonkers took place when, to the best of your recollection? [1605]

A. I think we got started fairly early in the summer at Yonkers, and to the best of my memory continued fairly well through the summer at General, making an overlap there.

Q. That was in the year 1927?

A. That was in the year 1927.

Q. Do you know whether the Dry Ice Company of America was reorganized about that time?

A. I think it was rather in the fall of '27. [1606]

* * * * *

Q. By Mr. Miketta: Throughout the operations at Liquid and General Carbonic and at Yonkers you were simply utilizing someone else's property for room for your machines?

A. Yes.

Q. Is that correct?

A. Yes.

Q. When did the Dry Ice Company first have a plant of its own?

A. Well, it broke ground just a day or two before Christmas.

(Testimony of Walter Lee Hood)

Q. Of what year?

A. Of '27 for a plant at Elizabeth, New Jersey. The plant came into production early in the summer of '28.

Q. What was your position with the Dry Ice at that time?

A. Production manager.

Q. What machines for producing solidified carbon dioxide were installed at this Elizabeth plant?

A. Snow tanks.

Q. Were any other machines installed?

A. No. We installed three lines of snow tanks and left space for the larger machine which we planned to develop and which was—

Q. Did you see such a machine before you left Dry Ice?

A. I saw it on going into the plant just as a visitor during the last days there.

Q. Were you actively in charge of production—[1608]

Mr. Caughey: Just a second. May we have a time fixed there?

The Court: Yes.

Q. By Mr. Miketta: At what time did you see this machine at Elizabeth?

A. Well, if I may lead up to it, it is the best way I can give you that. I left Dry Ice the first of May.

Q. What year?

A. Of 1929. I had been on detached work for several months, away from the plant work, that is, actual plant operation. I would hesitate to say how many months, but several, and during that period of detached work I saw this machine in the plant over there, and I think it was fairly well along toward my last days at Dry Ice; in other words, near the spring of '29.

(Testimony of Walter Lee Hood)

Q. How much time did you spend at the Elizabeth plant during the year 1928?

A. A great deal up to some point in the fall, when I was put on the detached work and did not spend any time, practically no time there, just an occasional visitor.

Mr. Miketta: Will you pardon me just a second?

Mr. Foster: May I ask a few questions, your Honor?

Mr. Miketta: That will be all for me.

Direct Examination

Q. By Mr. Foster: This machine which you saw at the plant of the Dry Ice Company at Elizabeth and to which you have [1609] just referred, was that a unitary machine?

A. I didn't examine the machine at all. I don't think I even got close to it. I just saw it in a hurry as I was coming or going, or something to that effect.

Q. By the Court: That, as I understand it, was a machine that was beyond the bank of snow tanks; there was a large machine?

A. Yes, sir; in the space which we had allotted there for it.

The Court: I beg pardon?

A. In the space which we had left for these machines, I saw this machine, and the impression I got was of a unitary machine.

Q. By Mr. Foster: You referred in your testimony to a unitary machine that was in operation at the Liquid Carbonic plant when you went there about April 10, 1925?

A. Yes, sir.

Q. And you also stated that there was some machine which was available for the inspection of visitors and that visitors did see it. Was that the same machine?

(Testimony of Walter Lee Hood)

A. Well, I would not say "available for inspection." It was not put there for that purpose.

Q. No; I understand, but it could be seen by visitors, could it?

A. Oh, one of them was setting in the open and was in plain view from the road, the street, in passing; the other [1610] was inside the building, but visitors inside the plant could see it.

Q. And did that condition obtain from the time you first went there at the Liquid Carbonic plant around about April 10, 1925?

A. Well, the first one was there and in operation; the second one was delivered thereafter. I don't know how long.

Q. Yes. But that first machine, the unitary machine that was there when you went there about April 10, 1925, could be viewed by visitors from the plant?

A. In the plant.

Q. In the plant, is that true?

A. Yes. The second one that was delivered, we had no room for it and put it outside.

Q. You stated that you had some trouble with some of the machines that were like this unitary machine that was there when you first went there and the machines subject to the changes as illustrated in the Exhibits O and P to which you referred. Were those troubles that you had and to which you referred sufficient to prevent the operation of those machines to produce ice which was shipped out?

A. Oh, no. We made ice every day, some, and kept shipments moving at all times. We may not have given them what they ordered and, as I say, we had to ration and apportion it at times, but we produced ice all along.

(Testimony of Walter Lee Hood)

Q. By the Court: When you say you may not have given them [1611] what they ordered, you mean the amount they ordered?

A. The amount they ordered.

Q. Or the product that they ordered?

A. Yes, sir; the amount. We apportioned our supply according to the orders.

Q. By Mr. Foster: Is it correct that, with the machine, the unitary machine that was there at the Liquid Carbonic plant when you went there about April 10, 1925, you know that in the days immediately following your arrival it was used to make compressed blocks of solidified carbon dioxide which were shipped out to customers?

A. Yes, sir.

Q. And likewise you do know, of your own knowledge, that these machines with the modifications, the unitary machines with the modifications you have described were, with each of those modifications, used to make compressed blocks of solid carbon dioxide which were sent out to customers?

A. Yes.

Q. And through all those modifications of the unitary machine that you have described and such use of them, that continued from about the time you went to Liquid Carbonic about April 10, 1925, until about what date?

A. Well, as I say, the snow tanks were put in approximately the first of June and there was—oh, a few weeks overlap, whether two or four, I would hesitate to say. I do [1612] know there was an overlap.

Q. You mean by the first of June, the first of June, 1925?

A. The first of June, 1925; yes, sir.

Q. And by "overlap" you mean that the unitary machines were used at the same time as the snow tank machine with its associated parts?

(Testimony of Walter Lee Hood)

A. Operation of both at the same time.

Q. In the unitary machine, with all of the modifications which you have described, as I understand its operation, that operation included the supplying of liquefied carbon dioxide gas to the snow chamber of the device?

A. That was the last stage of change; yes.

Q. In all of the stages of this unitary machine there was a closed chamber and in the operation of all of the modifications you supplied liquefied carbon dioxide gas to that closed chamber? A. Yes.

Q. And in the operation of all of the modified forms during the time that the liquid carbonic dioxide gas was being supplied to the chamber, the chamber receiving the liquefied carbon dioxide was closed or sealed to the atmosphere, wasn't it? A. Yes.

Q. And as a result of the delivery of the liquid carbon dioxide to this closed chamber in all of the forms of this [1613] unitary apparatus—

Mr. Caughey: Just a second, may your Honor please.

Mr. Foster: Yes.

Mr. Caughey: Mr. Foster has asked a number of leading questions here. I mean a few are all right, but in view of the fact this is a fact witness on the prior use, I do not think it is proper.

Mr. Foster: I will reframe the question in view of the objection.

Q. In any of these unitary machines or the modifications thereof which you have referred to was any portion of the liquid carbon dioxide gas delivered to them converted to a solid?

A. In each case. That was the object thereof.

(Testimony of Walter Lee Hood)

Q. And was any portion of such liquid carbon dioxide converted to a gas?

A. A portion was converted into the solid and the other portion to a gas which went back to the system.

Q. Now, in any of these unitary machines which you have described or the modifications thereof was the volume of the chamber into which the liquid carbon dioxide was delivered varied or changed during the time that solidification of the carbon dioxide occurred therein, or were such chambers maintained at constant volume?

A. You mean changed during an operation?

Q. Yes; during the time that the liquid carbon dioxide [1614] solidified?

A. That was possibly tried in the last stages; in fact, I am sure that it was. In other words, the plunger was operated while the expansion was going on.

Q. Do I understand from that—did that variation in the volume in the chamber always occur during solidifying operation? A. No; it didn't always occur.

Q. When it did not occur, the volume of the chamber, as I understand you, was maintained constant during the solidifying step? A. Yes.

Q. Then, in the operation of this unitary machine or any of the modifications to which you have referred what was done with this carbon dioxide gas into which a portion of the liquefied carbon dioxide was converted; was it permitted to remain in the chamber?

A. Well, it always went back to the system, except on this last modification of the machine, when the inflow of liquid was stopped and the idle plunger was started forward, opened the vent to the air. That was the only time it was opened and there was some loss there.

(Testimony of Walter Lee Hood)

Q. When did this portion of the liquid carbon dioxide that was converted to a gas in the chamber go back to the system with respect to the period during which the solid carbon dioxide was being formed in the chamber? [1615]

A. During the whole operation.

Q. And did you in the operation of this unitary device or any of the modifications thereof shut off the liquid carbon dioxide during the operation?

A. Shut off the supply?

Q. Shut off the supply. A. The injection; yes.

Q. And when did you do that in the operation?

A. During the compression stage when it was being formed into a block.

Q. When did you shut off the supply of the liquid carbon dioxide to the chamber with respect to the solidifying of the carbon dioxide in the chamber to which you have referred?

A. Before starting the machine to compress it.

Q. Had any solid carbon dioxide been formed in this unitary apparatus or its modifications before you shut off the liquid carbon dioxide inlet?

A. All that was formed was formed prior to that.

Q. And in the operations of this unitary machine and its various modifications did you open the machine to the atmosphere between the time that the carbon dioxide was solidified and the time that it was compressed in the blocks?

A. No. But—I beg your pardon. When it was operating and injecting into the cylinder itself, we opened this vent. [1616]

Q. The vent to the atmosphere?

A. To relieve the pressure.

(Testimony of Walter Lee Hood) .

Q. And by "this vent"—

A. That little red, indicated by that little red mark.

Q. You are referring to the red addition to Fig. 3 of Defendants' Exhibit P, is that correct?

A. Yes, sir.

Q. But except for the communication with the atmosphere through that vent which you have just described, did you in any other manner open up this unitary apparatus or its modifications between the time that the solid carbon dioxide was formed in it and the time when it was compressed into blocks?

Mr. Caughey: Just a second. I have previously made objection to leading questions, your Honor. I think that the questions should be framed so that this witness could tell his own story on this device. It appears to me, and I will admit that we want some leeway so we can proceed with as much rapidity as possible, but nevertheless, it seems to me that counsel is exceeding the bounds a little bit in this line of questioning.

The Court: Let us have that question read again, please.

Mr. Caughey: And I am not referring specifically to this one question; I am referring to the line of questioning.

(Question read by the reporter.)

The Court: I think I will permit this one question, [1617] although it is undoubtedly leading. A number of them have been. Let him answer this one to save time, and then I will ask counsel to try and desist.

Mr. Foster: I think this is my last question.

A. No.

(Testimony of Walter Lee Hood)

Mr. Foster: That is all.

The Court: What was the answer? A. No.

Mr. Foster: No further direct examination. [1618]

* * * * *

WALTER LEE HOOD,

recalled.

Cross-Examination

Q. By Mr. Caughey: Mr. Hood, I believe you testified that you worked for the Carbide Company prior to going to work for Dry Ice.

A. Carbon and Carbide Chemical.

Q. Carbon and Carbide Chemicals; is that the proper name?

A. I could never remember whether it is Carbon and Carbide or Carbide and Carbon.

Q. Did you know Mr. Martin before you came to work for Dry Ice? A. Yes, sir.

Q. Where did you know him?

A. I knew him with the Carbon and Carbide.

Q. How long had you known him—

A. And previously, with the Federal Die Stuff and Chemical.

Q. For how many years had you known him?

A. I first met him in 1916.

Q. And you were a close friend of his, is that correct?

A. Yes, sir.

Q. I believe you testified you had no experience in the [1622] manufacture of CO₂ prior to coming with Dry Ice? A. No, sir; I had none.

(Testimony of Walter Lee Hood)

Q. How long did you work for the predecessor, Carbon and Carbide, that is, I mean your predecessor employee, prior to coming to Dry Ice?

A. I went with them in June, June or July of 1920.

Q. And you left when?

A. At the end of March, 1925.

Q. Have you checked any of your records to note the time that you were employed by that concern?

A. Which one?

Q. Have you any records which you checked—by "Carbon and Carbide"?

A. No; I haven't checked any records.

Q. You are just relying on your memory, is that correct?

A. It is rather well set in my mind, as I was married in '23 and my son was born in '24 and I moved to New York in '25. From those points it is rather well set.

Q. From those points you can determine you went to work for Union Carbide—or Carbide and Carbon?

A. Carbide and Carbon.

Q. And Carbon, in 1920, is that right?

A. Well, I am definitely certain on that.

Q. Who did you work for prior to that time?

A. Carbon and Carbide?

Q. Yes. [1623]

A. Well, I had been with the Atlantic Refining Company for a short time.

Q. When did you cease their employ?

A. Possibly a month or two before going to—in '20, early in 1920.

Q. In the fall or the summer or spring or what?

A. Early 1920, the spring.

(Testimony of Walter Lee Hood)

Q. What month? A. I don't know.

Q. And prior to working for—was it Atlantic Refining, you say? A. Atlantic Refining.

Q. Who did you work for before that?

A. A little research organization, whose name I have forgotten, who built a plant for the Charleston Chemical Company, Charleston, West Virginia.

Q. How long did you work for that concern?

A. Approximately a year, possibly more; possibly a year and a half. A year to a year and a half.

Q. You are not sure, though? A. No.

Q. When you left the Dry Ice Corporation who did you go to work for?

A. When I left the Dry Ice Corporation I went to work for a licensee of theirs in Houston, Texas.

Q. What is the name of that concern? [1624]

A. That was called the Dry Ice Corporation of Texas, Louisiana, first, and then they changed that name to Dry Cold Corporation.

Q. When did you go to work for that concern?

A. Approximately the 1st of May, 1929.

Q. What year? A. 1929.

Q. When did you leave the employ of Dry Ice Company? A. The end of April, 1929.

Q. You are sure of that? A. Yes.

Q. You are sure you did not leave around the first of the year, 1929? A. No, I did not.

Q. I believe you testified that you did not have much to do with the plant operations after October and November, 1928. A. Some point along there.

(Testimony of Walter Lee Hood)

Q. What were you doing after that time?

A. I was trying to satisfy the Japanese licensees of Dry Ice Corporation. They had sold a license to them, and I was assigned to cooperate with them.

Q. That was the only position that you had after that?

A. That was practically my only duty.

Q. You did not have anything to do with the plant operations after that date, is that correct?

A. No, sir. [1625]

Q. I believe you testified you visited the plant, just walked in and out, and did not pay much attention to it?

A. I went to look at some specific thing, and in a hurry.

Q. As to this machine that you said you saw just being installed, or after being installed at the Elizabeth plant, you did not pay enough attention to know what it was?

A. I just gave it a passing glance at that time.

Q. You testified that you came to Maspeth in early April, 1925, is that correct?

A. Yes, sir.

Q. What was your position there?

A. Engineer.

Q. Were you in charge of production?

A. Yes.

Q. Was Mr. Martin there at the time that you got there?

A. Yes.

Q. Did he continue there at Maspeth all the time that you were there?

A. Between Maspeth and the office.

Q. Did he spend most of his time out at Maspeth, or at the office, do you know?

A. During that period I imagine it was pretty equally divided in time.

(Testimony of Walter Lee Hood)

Q. Have you any recollection as to it?

A. I am sure he was there almost every day, several hours.

Q. Was he there in the mornings or afternoons?
[1626.]

A. No specific times.

Q. He might be there in the morning, or the afternoon, is that correct?

A. Yes, he was almost there every day, for several hours.

Q. Did Dry Ice Corporation lease space from Liquid Carbonic at Maspeth?

A. Liquid Carbonic supplied us the space. I do not know the business arrangement.

Q. How much space did they supply?

A. Possibly as much space as the open space between this jury box and the wall and back to the benches; a little bit less than that, I guess.

Q. You would say about 40 x 30 feet, is that right?

A. It might have been a little less than that.

Q. Was that on the first floor or the second floor?

A. The first floor.

Q. Did the building have more than one floor?

A. Not in the main compressor room, except a little sort of storage space over the office where they kept a bunch of small supplies.

Q. Do you know how much liquid CO₂ was supplied to Dry Ice by Liquid Carbonic at Maspeth plant, while you were there? A. I do not.

Q. Do you know how much a day was supplied?

A. That was rather variable.

(Testimony of Walter Lee Hood)

Q. You are sure it was variable? [1627]

A. The amount we used was variable. Whether they had a contract for a definite amount or not, I don't know.

Q. You don't know whether they did or not?

A. No.

Q. Who were the employees of Dry Ice Corporation when you came to Maspeth? Who were the employees that were at the plant?

A. Fitzpatrick, and another young engineer. The name has slipped me.

Q. Mr. Hood was there? A. I am Hood.

Q. I mean Mr. Martin was there?

A. Yes, I went there first with him.

Q. Were there any other employees?

A. Yes, several young operators.

Q. Did they maintain a shipping room or stock room there? A. We did not.

Q. When you say "we" you mean Dry Ice?

A. Yes.

Q. You did not ship out of that plant at all?

A. Yes, we shipped out of there. We did not have a shipping room or office.

Q. Where did you do the shipping from?

A. Right out of the door back of the machines.

Q. The cartons, and everything to pack the dry ice in, were right there, is that right? [1628]

A. Yes, everything we had was right in this corner of the building.

Q. How did you get dry ice to the customers?

A. We had a truck of our own. A great many of them called for it.

(Testimony of Walter Lee Hood)

Q. More than one truck?

A. Yes, we had some light truck of some kind, and this antiquated White, which I mentioned. The White was the heavier truck. We had two trucks, I am sure.

Q. Do you recall whether you had your own phone there at Liquid Carbonic? A. I don't think we did.

Q. Did you maintain an office there? A. No.

Q. No office force at all, is that correct?

A. No office force at all, unless you would call a little shipping clerk the office force. He doubled, and helped around, handling the shipping.

Q. As a matter of fact, the building was run by Liquid Carbonic? They actually ran the building?

A. Yes.

Q. So far as the responsibilities of fire protection, and so on, that was their responsibility? A. Yes.

Q. You referred to visitors to the plant. Were there many visitors during that period of time, say from April to [1629] July, 1925, at the Maspeth plant?

A. Many is quite an indefinite term. Every few days Mr. McLaren and Mr. Josephson would bring in someone, and some days people would come in to see Liquid. [1630]

Q. The people were people who came in to do business with Liquid, and would just pass through?

A. Some, and some were people brought over by Mr. McLaren and Mr. Josephson.

Q. Do you remember the names of any of those visitors?

A. No, I am not good at names. One I remember particularly, that Mr. McLaren brought in, quite an elderly gentleman; whom I was introduced to as chief engi-

(Testimony of Walter Lee Hood)

neer of the Knickerbocker Ice Company. I remember him. I don't recall his name.

Q. Those visitors just glanced, and looked at the equipment, and went on?

A. Some were rather interested, and stood around half an hour or so.

Q. You took your time to explain the operation?

A. No, unless Mr. McLaren or Mr. Josephson brought them; I simply met them.

Q. Then the visitors you refer to were visitors actually brought in by Mr. McLaren and Mr. Josephson?

A. Visitors whom I met, yes. Others came and looked.

Q. You don't know whether Liquid Carbonic had any rule as to whether visitors should or should not be allowed in the plant, do you?

A. No, I do not.

Q. I believe it is your testimony that when you first came to Liquid Carbonic plant at Maspeth, that there was a [1631] machine there for making dry ice; is that correct?

A. Yes, sir.

Q. Will you please describe that machine?

A. Well, I think that I described it in my previous testimony. It was a single unit, or unitary machine, composed of a hopper, wherein the snow was formed, with a conical bottom, vertical, which discharged downward into a square chamber, in which a plunger operated and compressed the snow into blocks. This was driven by a crank shaft and belt and motor. It formed blocks of ice of compressed solid carbon dioxide, of approximately $3\frac{1}{2}$ by $3\frac{1}{2}$ by 8, which was the length which we were trying to form.

Q. You are talking about the size of the blocks of ice?

A. Yes.

(Testimony of Walter Lee Hood)

Q. Were those blocks square, cylindrical, or what?

A. Rectangular. They were square, $3\frac{1}{2}$ by $3\frac{1}{2}$ by about 8 inches in length.

Q. So they were not round blocks?

A. No, they were not round blocks.

Q. This hopper, how high or tall was the hopper that you refer to?

A. My memory is kind of hard on that. Perhaps 24 inches; perhaps 30.

Q. Was it square, rectangular, cylindrical, or what?

A. Cylindrical. [1632]

Q. Did it taper, or was it straight up and down?

A. It was straight up and down, and then it tapered at the bottom; it was funnel-shaped at the bottom.

Q. How much of a taper? When it tapered, what was the opening it finally came to?

A. $3\frac{1}{2}$. Whether that bottom was round, or square, I do not recall, but it was approximately the size of the chamber underneath it.

Q. So it was about $3\frac{1}{2}$ by $3\frac{1}{2}$; is that correct?

A. Yes.

Q. How long was the pressing chamber?

A. The blank, on the end, when that was used I would think somewhere between 14 and 18 inches.

Q. You haven't any better recollection as to the length; is that correct?

A. That is as near as I would like to say.

Q. 14 to 16 inches?

A. There were nozzles put onto that, which lengthened it on certain occasions.

Q. As I understand your testimony they put a C clamp on the end; is that correct?

A. Yes.

(Testimony of Walter Lee Hood)

Q. Referring to the time when they put the C clamp on the end of it, what would be the length when that was done? A. That is the figure I gave you.

Q. 14 to 18 inches? [1633] A. Yes.

Q. I believe there was some testimony that you put nozzles on the end of the C. clamp?

A. Replaced that plate on the end with a nozzle, slightly tapered. Under those conditions we extruded the block, rather than holding the blank against it.

Q. How long was the nozzle?

A. I think three or four different ones were used; perhaps one foot in length. It may have been longer than that.

Q. You haven't any definite recollection?

A. I have no recollection of the length. They were about a foot long.

Q. What was the stroke of the piston, do you remember? A. No, I do not.

Q. Have you any recollection at all?

A. Oh, within limits, but it would be rather hard to say.

Q. Was it the full length of the pressing chamber?

A. No.

Q. How much shorter? You say the length was 18 inches. How much shorter was it?

A. At least 8 inches, because we could not have formed an 8-inch block in there. Possibly longer; I am not sure of that. If longer than an 8-inch block, it would lessen the stroke. [1634]

Q. You say the blocks formed there were 8-inch blocks? A. Approximately 8 inches.

(Testimony of Walter Lee Hood)

Q. So, regardless of what the length of the cylinder was, the stroke of the piston was 8 inches less than the length of the cylinder; is that approximately correct?

A. It was at least that much less.

Q. It was at least that much less? A. Yes.

Q. Do you know how much more it was?

A. How much more?

Q. You say it would be at least that much less. Have you any idea? A. How much less?

Q. Yes. A. No, I do not recall.

Q. You never at any time had any reason for determining the length of that stroke; is that correct?

A. I knew the length at that time definitely, but I don't recall it.

Q. The piston was driven by a motor, was it, and a pulley?

A. And possibly—I am not sure whether there was any gearing in there or not, or crank shaft.

Q. Do you recall whether there was any gearing?

A. I don't recall whether there was any gearing in there or not. [1635]

Q. Do you know how much pressure it exerted?

A. That I do not.

Q. This first structure that you say was in operation when you got there in April, 1925, where was it located in the plant?

A. Well, in this corner of the building. It was set out parallel to the end wall of the compressor room, 5 to 8 feet; enough to work around it well, and possibly 8 feet from the other wall.

Q. I do not believe that you described it sufficiently so that I will know just exactly where it was in that

(Testimony of Walter Lee Hood)

building. Perhaps I can get it this way: In what corner of the building was this apparatus installed?

A. I don't remember my directions there as well as I might, but I think this end of the building was northwest, I think.

Q. In the northwest end of the building?

A. The end of the building was on the northwest, and if that is true, this corner we were in was in the west corner of the building.

Q. And it was how close to the west corner?

A. Well, our space was that corner.

Q. Yes.

A. And the machine probably sat 5 to 8 feet from that northwest wall and 5 to 8 feet from the southeast wall.

Q. And you made ice with that machine? [1636]

A. Yes, sir.

Q. Was that under your direction? A. Yes, sir.

Q. I believe you previously testified that when you started the machine you put the C-clamp on; is that correct? A. Yes, sir.

Q. And then you formed your block of ice in there in the compression chamber, is that correct?

A. Not in the first operation when I was there. We formed the snow in the cylinder above it, the cylindrical hopper.

Q. And that dropped down into the compression chamber? A. Yes.

Q. And then you pressed it in the compression chamber? A. Yes, sir.

Q. That first block you pressed it against the C-clamp did you; is that correct? A. Yes, sir.

(Testimony of Walter Lee Hood)

Q. How many strokes of the piston did you use to compress it?

A. That was varied many times. I would not make any attempt to give the number on that. It varied from numerous times down to one stroke.

Q. I am talking about when you first were there.

A. When I first went there we were working on continuous operation to form the block through continuous motion [1637] of the piston; in other words, several travels of the piston to make the block.

Q. What do you mean by a continuous operation, so there won't be any question about it?

A. Keeping the machine moving until each block was finished.

Q. And snow could fall down from the chamber above during all that period of time? A. Yes, sir.

Q. How many revolutions were there at that time in r.p.m.s, do you recall? A. I do not.

Q. Have you any idea at all?

A. I just recall it was quite slow.

Q. What do you mean by quite slow?

A. 10 or 20 revolutions per minute.

Q. It could not have been as high as 40?

A. I don't think so.

Q. Did you ever time them?

A. Oh, I know that I timed them during that period.

Q. I am talking of when you first went there.

A. Yes; I am sure that I timed them.

Q. But you have no recollection as to what they were?

A. No.

Q. It might have been as high as 20; is that correct?

A. It might have been. [1638]

(Testimony of Walter Lee Hood)

Q. And that was a continuous operation?

A. Continuous to the forming of the single block, then an interval, because they had to remove the C-clamp and kick that block out.

Q. When you removed the C-clamp and you kicked the block out, as you say, how did you do that? [1639]

A. By operation of the plunger against more snow, which forced it out.

Q. Did you move the piston back and put some more snow in, and then bring it forward again, is that correct?

A. The snow fell down in front of it.

Q. Pardon?

A. The snow fell down in front of the piston—

Q. The snow fell.

A. —into the chamber in front of the piston.

Q. There was nothing to prevent it from falling down there, is that correct?

A. There was nothing to prevent it falling down, as I recall.

Q. Are you sure there was not something to prevent it from falling?

A. I am not sure, but I don't recall any.

Q. And the snow behind, as you say, that had fallen down the piston end, that would kick the other block out, is that correct?

A. Yes; push it forward.

Q. When that happened wouldn't a lot of snow come out at the open end by virtue of that force?

A. No; because it was operated before sufficient snow had fallen down to throw it out that distance; in other words, the block didn't come clear out and had to be pulled out, and then the C-clamp was replaced and the operation [1640] continued.

(Testimony of Walter Lee Hood)

Q. And the operation continued? A. Yes, sir.

Q. How did you determine the length of the block?

A. The length of the block was determined between the distance between the C-clamp and the end of the piston or the plate held by the C-clamp and the end of the piston.

Q. I am talking about the length of the 8-inch block now. A. Yes, sir.

Q. It was determined by the length between the C-clamp and the end of the piston, is that correct?

A. That was the block that was forced out, and then I don't recall whether we cut that block or not. I don't think we did.

Q. Then, the first block that was formed, if it was an 8-inch block, the length of the stroke must have been at least 8 inches less than the length of the cylinder, else you could not have formed the block, is that correct?

A. Length of that chamber, if you consider the whole chamber the cylinder—is that correct?

Q. Yes; it had to be that, is that correct?

A. Yes.

Q. Did you ever have any difficulty in the motor jamming so that it would not go past center because you had too much snow in there? A. Yes, sir. [1641]

Q. You had quite a bit of difficulty, didn't you?

A. Yes, sir.

Q. What did you do then?

A. Get on the pulley and add our manpower to it.

Q. You had to back it up, didn't you?

A. Oh, yes, of course.

(Testimony of Walter Lee Hood)

Q. You had frequent trouble, did you not?

A. That it would not go past center because it had gotten too much snow in front of it; yes, sir.

Q. Did you ever have any occasions where you blew the C-clamp off entirely? A. I don't recall such.

Q. Did you have any occasions where you cracked any other part of the apparatus by the force exerted?

A. I don't remember breaking anything.

Q. You might have, is that correct?

A. It is possible.

Q. You had a lot of trouble?

A. We had troubles; yes, sir.

Q. And that trouble was not in the compression—I mean—pardon me—that trouble was not in the condenser system or the system that supplied the gas and liquid to the—I mean liquid to the—

A. Supplied the liquid to the—

Q. You did not have any troubles on those lines?

A. Those were not our troubles. Those were Liquid [1642] Carbonic troubles in supplying us.

Q. So the troubles you are talking about are the troubles you had in operating the machine, is that correct?

A. Yes, sir.

Q. Did you have any trouble with the freezing up of the nozzles or freezing up of the outlets?

A. I think perhaps we did; yes.

Q. You had to change those, is that correct, or what did you do?

A. Probably take them loose and thaw them or unplug them.

Q. That meant shutting the machine down, did it, and taking some of the parts off?

A. Disconnection of the inlet nozzle.

(Testimony of Walter Lee Hood)

Q. And when the machine would jam and you would have trouble, you had to get in and dig that snow out, didn't you, then, that block of ice that was formed? How would you get it out?

A. Well, I don't recall digging it out, because by waiting a little while the radiation would warm it up enough to loosen it.

Q. It would warm it up so there would be an opening so it would melt so there would be a space?

A. It would be free from the side of it.

Q. It would be free? A. Yes.

Q. And it would be open to the atmosphere, is that correct? [1643]

A. Outside of the outside wall of that cylinder, as we have spoken of the chamber—

Q. Yes.

A. Was free to the air and it would warm up, which would loosen it.

Q. Did you ever notice in those blocks—I am referring now to the time when you first went there and when you made blocks of ice, as contrasted as to when you used the nozzle to which you have testified when you extruded ice—you understand that? A. Yes.

Q. —did you ever see any striations in the blocks formed? A. Yes.

Q. Did you notice difference in densities in the blocks?

A. Oh, yes.

Q. One end was hard and the other was soft?

A. Oh, various points in that block at times.

Q. It was not a satisfactory block, was it?

A. Well, from a refrigeration standpoint it was cold. It was not what we wanted to make; no. We wanted to build a uniform product.

(Testimony of Walter Lee Hood)

Q. When you got that block out it sometimes cracked, didn't it, or went to pieces?

A. Oh, it would crack occasionally but it didn't shatter.

Q. How much wastage did you have there on that first [1644] machine; how much would you say in percentage?

A. That would be a mighty wild guess. We had considerable wastage; yes.

Q. Would it be a fair estimate, 15 percent?

A. On over-all operation, I doubt if we had that much.

Q. 10? A. That would be nearer my guess.

Q. Perhaps somewhere between 10 and 15, is that correct?

A. Or even less than 10. 10 would be my guess, if I had to guess, but it is a guess.

Q. What was that wastage; what did it consist of; what actually was the wastage, that 10 percent?

A. Snow or ice.

Q. And it was the wastage after it got out of the machine, is that correct? A. Yes.

Q. Chipped off, fell to pieces?

A. After it came out of the machine.

Q. Exploded in some cases, did it not?

A. No; I don't think any of that exploded on us. I don't remember any of that ice exploding.

Q. How long did you use that first machine you are talking about that had the hoppers, as you called them, above, where the snow was actually formed, was that correct? A. Yes. Without changes?

Q. Yes. [1645]

A. Oh, I don't imagine—I imagine it was a matter of days, probably not more than a week.

(Testimony of Walter Lee Hood)

Q. It was not satisfactory, was it?

A. Well, we had trouble getting the snow down from the hopper.

Q. Yes.

A. It would hang in that hopper, was the reason we moved on downward.

Q. You had a lot of trouble, didn't you?

A. Yes; plenty.

Q. Otherwise you would not have changed it, is that correct?

A. Or we would not have changed it.

Q. Then what device did you go to from then; what change did you make?

A. Well, first eliminated the hopper.

Q. Yes.

A. Went down and used the funnel-shaped base or something practically like it.

Q. That meant stoppage of the machine and taking the hopper off, didn't it. You did not make ice while you were doing that?

A. Of course not.

Q. How long did it take you to make those repairs or changes, do you know?

A. I wouldn't know whether it was a couple of hours or [1646] half a day.

Q. Did you call somebody in to do it from the outside, or was it done there in the plant under your direction?

A. I don't remember.

Q. And after that change was made where was the inlet pipe put?

A. Into the side of this funnel-shaped—

Q. What was the distance from the top of the compression chamber up to the top of where the outlet went out?

A. I don't remember.

(Testimony of Walter Lee Hood)

Q. You have no recollection?

A. Oh, I have approximate recollections, but it would be a guess on distance.

Q. Did you have a screen over that outlet?

A. Yes, sir.

Q. Did that screen freeze up on that modification you made when you operated the machine?

A. Oh, yes; we had troubles with the screen freezing up all through.

Q. And when you had trouble, you had to stop the machine?

A. Yes, sir.

Q. And stop operations and put it in, is that correct?

A. Yes, sir; clean it off—quite often broke it.

Q. How long did you operate that, as I recall it, the second—

A. Phase? [1647]

Q. —machine, or the first modification, put it that way.

A. Oh, that, again, I would hesitate to say whether it was two or three days or ten days.

Q. That was not satisfactory?

A. It was a little better, but it was a step in the right direction, we felt, and moved further down.

Q. What was the trouble with that?

A. The same condition.

Q. What do you mean by same condition?

A. The difficulty of getting the snow from the chamber where it was formed into the compression chamber.

Q. And did you continue to use that as a continuous machine, as you have described it?

A. We used it both ways. I don't—

Q. When you did not use it as a continuous machine, will you please describe the operation?

(Testimony of Walter Lee Hood)

A. We got the snow chamber as full as we could fill it, and a couple of preliminary turns of the machine to compact the snow in the forward end of the chamber.

Q. Was the C-clamp on at that time? You had a C-clamp on at that time? A. Yes.

Q. Yes.

A. And finally, when we felt by the motion of the machine that we had a reasonable density, proper density, we [1648] would open it and kick the block on out.

Q. What do you mean by the motion of the machine you had the proper density?

A. In other words, we got in practically all we could get with the power of the machine.

Q. And you would give it a couple of strokes first, did you, when you first started, as you say?

A. Compact to put more snow in, make a stroke and put some in and let her pack and let the chamber fill again. As I say, we did it all the way from a continuous operation to single strokes in making the block.

Q. And when you say "single strokes" you pressed the block with just one stroke? A. Yes.

Q. Is that correct? A. Yes.

Q. But snow all the time could fall down into the pressing chamber, is that correct?

A. Except when the plunger was forward and cut it off.

Q. Yes. And then was the C-clamp after a block was formed and was ejected, was the C-clamp put back on again?

A. During the time of operation when we were not using the nozzle, as mentioned.

(Testimony of Walter Lee Hood)

Q. That is, any time when you did not use the nozzle you put the C-clamp back on after each operation, is that correct? [1649] A. Yes; I think so.

Q. So that the block was pressed against the C-clamp, is that correct?

A. Against the plate held by the C-clamp.

Q. Against the plate. You are sure of that?

Q. Yes, sir.

Q. When did you commence using nozzles, the extrusion nozzles? A. I couldn't say at what point.

Q. You don't know whether you used it with the first machine that you saw when you came there or not?

A. Yes; I am sure we used it on that first machine.

Q. You are sure about that? A. Yes.

Q. Did you have those nozzles specially manufactured?

A. Yes.

Q. For the purpose? A. Certainly.

Q. Do you know who manufactured them?

A. Eppenbach Brothers made the machine, and I am sure that they made the block, but I didn't see them make it—the nozzles, but I didn't see them make them.

Q. The machine that you saw was there when you came there, wasn't it? A. Yes.

Q. So that if Eppenbach Brothers made it, you say that [1650] because you were told by someone they did make it?

A. By them, and I saw other machines which were in progress of being made in their shop.

Q. The first machine, the only knowledge you have is what somebody told you?

A. That is true; that is true. The machine was made and in operation.

(Testimony of Walter Lee Hood)

Q. When you used the machine as an extrusion machine would you say it was a continuous operation or intermittent? A. Continuous.

Q. Continuous. How many r.p.m.s at that time, do you recall?

A. No. That is when I was speaking of rather slow movement. Let me see; we came to the figure of 10 to 20, I think in discussing it a few minutes ago. I said about 10 revolutions would be my guess.

Q. And that was for the extrusion machine?

A. Yes.

Q. By the Court: You had an incline go beyond the end of the nozzle so it would break off?

A. That was an *inovation*. The first went out flat and sawed off.

Q. You whacked it off or sawed it off?

A. Sawed it off, broke it; and then later we slipped a little thin wedge under it.

Q. And it cracked itself off? [1651]

A. Yes, sir.

Q. By Mr. Caughey: I believe it is your testimony that the snow tank, as distinguished from this other machine you saw, the snow tank was put in after you came there? A. Yes, sir.

Q. It was not there at the time, is that correct?

A. After I came.

Q. Sometime in June, as far as your recollection?

A. As best I can remember, approximately six weeks after I got there, around the end of May or first of June.

Mr. Foster: Could we ask that Mr. Caughey speak a little louder, too? I think it would help.

Mr. Caughey: I will try to.

(Testimony of Walter Lee Hood)

Q. And that is 1925? A. Yes, sir.

Q. You also testified to placing the inlet in the compression chamber, is that correct? A. Yes, sir.

Q. You say that compression chamber was 14 to 18 inches in length. Just where was that nozzle placed?

A. In the side of the chamber, as I recall, very close to the end of the stroke of the piston.

Q. If the compression chamber was 18 inches long and the stroke was about 8 inches less than that, then it would be about 10 inches?

A. The stroke may have been a little less. [1652]

Q. It may have been?

A. The stroke may have been, in other words, a little less distance than the end of that chamber not covered by the piston, but the inlet, the gas, when placed in the chamber was over close to the end of that stroke, just beyond the end of the stroke of the piston, as I remember it.

Q. Then, it would be your testimony that at no time did the stroke ever close that inlet, is that correct?

A. I don't think it did.

Q. Are you sure about that?

A. I cannot be sure of that.

Q. Was there a nozzle used for that inlet?

A. Well, it was a constricted inlet pipe.

Q. Constricted? A. Yes.

Q. So it would function as a nozzle?

A. Function as a nozzle, various types we used.

Q. Speaking of that particular operation, for what length of time did you allow the liquid to flow in into the

(Testimony of Walter Lee Hood)

chamber? When I mean liquid I mean liquid coming through the pipe to the nozzle; how long did you allow it to flow in making a block of ice?

A. I think by the time we had gotten down there and moved it down successively, as described—I think we were on continuous operation then—and the liquid continued to go in. [1653]

Q. Just continued to flow in. You did not have any valve on that line at all?

A. Oh, certainly; we had a valve on it.

Q. But you just left it open and let it flow?

A. To the best of my memory.

Q. That is when you are talking about using it as an extrusion machine now? A. Yes.

Q. When you used it to make blocks of ice how did you operate?

A. We were making blocks by extrusion.

Q. Yes; but you were sawing them off after they got out, isn't that correct?

A. Sawing them or breaking them.

Q. Yes. I am not referring to that. I mean when you actually used the C-clamp, as contrasted to the extrusion machine, when you used the C-clamp did you allow continuous flow then? A. No; we couldn't.

Q. That was an intermittent operation?

A. Yes. Then you would lose the gas, then, if you did, excessively.

Q. By the Court: When you were using the extrusion method of handling your product, wouldn't that CO₂ inlet have been placed so that as the piston was forward

(Testimony of Walter Lee Hood)

to eject or compress it would close off the inlet for a temporary period of time [1654] in each stroke so as to have a continuous operation?

A. I am not sure of that. I rather think that it was, and yet I don't—I can't say definitely. [1655]

Q. There were two other machines, were there, at Maspeth, similar to the machine that was installed when you first came there?

A. Definitely one, and I am not sure whether the second one was there or not.

Q. Did you ever install any other except that one that was there when you first came there?

A. I beg your pardon. I will reverse that. There were two there,—no, I will go back to my original; there were at least two machines there.

The Court: By "there" you mean what?

A. At the Maspeth plant.

Q. By Mr. Caughey: Do you mean actually installed and in operation?

A. I think we installed the second machine at that time. I am not definite on that.

Q. You are not sure of that?

A. I am not sure that we operated the second machine.

Q. Was there another machine in addition to that second machine that was there at that plant that was not put together?

A. I don't think we had but two machines there.

Q. That was all you saw; is that correct?

A. That is all I remember.

Q. Was there space to install a second machine, if you had wished to do so? [1656]

A. Yes.

(Testimony of Walter Lee Hood)

Q. How many snow tanks were installed at the Maspeth plant prior to July, 1925?

A. I don't remember whether we put in three or four—either three or four.

Q. Did they all come at the same time, and were they all installed at the same time?

A. Within a few days. I imagine we grabbed the first one or two, and stuck them in.

Q. Were those new machines, just constructed?

A. The snow tanks?

Q. Yes. A. Yes.

Q. They weren't second-hand? A. No, sir.

Q. Did you remove this first machine that you saw, that you called the unitary structure—that's the designation you gave it? Was that removed when you put the snow tanks in? A. No.

Q. It was not? A. No.

Q. Where were the snow tanks put in in reference to where the so-called unitary structure was positioned?

A. At right angles to it, and approximately even with the end of the machine in toward the plant, away from the [1657] wall.

Q. Were they hooked up to the same compressor system? A. To the same supply, yes.

The Court: Do you mean the snow tanks were all hooked up to the same?

Q. By Mr. Caughey: The snow tanks and others; were the snow tanks and these structures that you testified you saw when you first came there, and which were subsequently modified, were they all hooked up to the same inlet supply system? A. Yes.

(Testimony of Walter Lee Hood)

Q. And the same outlet system?

A. Yes, I think they joined before going back. I am reasonably sure of that.

Q. Are you sure of that?

A. They came from the same point, and went back to the same point, and I think in most cases the same lines were utilized.

Q. You did not have anything to do with that; is that correct, with making the hook-up^a or installation?

A. Yes, I did have.

Q. You can't remember?

A. I can't remember definitely. I am reasonably certain they were the same lines used.

Q. Were those snow tanks immediately put in operation? A. Yes, sir. [1658]

Q. As I understand the operation of the snow tank, you make snow in the tank, and then you bring the snow out of the tank and into a receptacle of some kind, tamp it, and then you afterwards compress it; is that correct?

A. Yes, sir.

Q. When you first started manufacturing snow, making snow in the snow tank, what size blocks did you make, of dry ice?

A. 3-inch cylindrical block; I forget the length. Probably 8-inch; somewhere in that neighborhood.

Q. That was in the early part of June, was it?

A. About the first of June.

Q. Who did you make those for, do you remember?

A. They were made specially for Schraffts.

Q. You just got the account at that time?

No, we had had the account. That developed into what they wanted.

(Testimony of Walter Lee Hood)

Q. What had they been using prior to that time?

A. The only other thing we supplied was the square block.

Q. How did they use that square block, if you know?

A. Well, they used it to refrigerate ice cream.

Q. Did they have a special container to do that?

A. I don't know whether they adapted their normal container, or used a special container on that.

Q. Do you know whether they changed their container [1659] when you began making cylindrical blocks?

A. I think they did. They started using the Seal-Right container at that time, I think. I know they use it. I think that was the first use of it.

Q. The Dry Ice Corporation, did they make refrigerating cabinets at Liquid Carbonic plant at Maspeth?

A. Make them?

Q. Did they construct cabinets for refrigeration, particularly in connection with ice cream? A. No.

Q. You did not see any such?

A. I saw various and sundry experimental stuff out there of that kind, over at, I guess you would call it the laboratory, at Borough Hall in Queens, in Long Island.

Q. None of that was done at Liquid Carbonic?

A. None of that was done there at Maspeth.

Q. Were any of these square blocks that you used—did you ever see them put in these special refrigerating cabinets? A. Which?

Q. Which I have referred to.

A. No, I didn't see them. I wasn't in contact with the customer, except when he came there.

(Testimony of Walter Lee Hood)

Q. You don't know whether these refrigerating cabinets were manufactured specially to conform to the size of these blocks or not, do you? [1660]

A. No, I was told so, but I don't know so.

The Court: Do you mean that the cabinets were built to conform to the block, or that the block was made at a convenient size for the cabinet, or both?

A. Both. I had no contact though with the user; except simply what I was told. It was the rarest thing I ever had any contact with them.

Q. By Mr. Caughey: How many hours a day did you work or operate at Liquid Carbonic?

The Court: Do you mean he personally, or the machines?

Mr. Caughey: I mean working hours. Did you have two shifts, one shift, or what?

A. We had one shift.

Q. What was the normal working day?

A. I don't remember whether it was 8 or 9 hours. Quite often we worked as long as the Liquid would let us; many hours of the night; midnight often.

Q. There was a demand for dry ice, I believe you testified, prior to July 4th? A. Yes.

Q. 1925?

A. I think there was a demand larger than the supply.

Q. You weren't able to supply the demand?

A. We weren't able to supply the demand, I don't think, any time during the first year.

Q. Even with the three or four snow tanks that you put in? A. Yes. [1661]

(Testimony of Walter Lee Hood)

Q. Did you say it was three or four?

A. I think there were four. I am certain there were as many as three put in right at first.

Q. You recall being at Maspeth on the 4th of July, 1925. Do you have a definite recollection as to that?

A. Yes, sir.

Q. Where were you living at that time?

A. At College Point, Long Island.

Q. You drove from your home to work; is that correct?

A. Yes. I did not drive in at first. I did not have a car at first.

Q. When you did not have a car how did you get there?

A. I usually went directly into the city, and came back out.

Q. You had to go into New York and come back out?

A. Yes.

Q. How long did you continue to live at—was it College—

A. College Point, until some time in 1928.

Q. Even when you moved to Yonkers you still lived at College Point; is that correct?

A. In 1928 I moved over to just the north edge of Belleville, New Jersey.

Q. During the period of time you were at Yonkers you still maintained your residence at College Point?

A. Yes, I think I was still at College Point when I [1662] was still at Yonkers.

Q. You did not move your family to Yonkers?

A. No.

(Testimony of Walter Lee Hood)

Q. You commuted?

A. Went back and forth.

Q. I believe it is your testimony that you moved—when I say you, I mean the Dry Ice Corporation plant moved from Maspeth to the General Carbonic plant; is that correct?

A. Yes.

Q. When did that move take place?

A. I can't be definite on that, but I think during the spring or summer of '26.

Q. Was it before the 4th of July, '26?

A. I don't know.

Q. You have no recollection?

A. I can't be that definite.

Q. You don't know whether you spent one or two 4th of Julys at Maspeth; is that right?

A. No, I do not.

Q. That was the peak period, around then, was it not?

A. Yes; the 4th of July was a peak, and Labor Day again. It was all a peak to us at that time.

Q. Could it have been after Labor Day in 1926, I believe you testified that you moved to Long Island, to the General Carbonic plant?

A. It could have been, but to the best of my memory, [1663] it was during the summer.

Q. You have no way of fixing that period at all?

A. No, I haven't.

Q. Did you move all the snow tanks to the General Carbonic plant, that you had at Maspeth?

A. We made some new and larger snow tanks at some point there. Whether that was before we went to General or not, I can't say; and we possibly discarded the smaller ones, but we moved the ones that were in use.

(Testimony of Walter Lee Hood)

Q. How many did you have in use at Maspeth when you did move to General Carbonic?

A. I think it was four.

Q. And you moved all of those?

A. We moved all of those.

Q. Did you go over to the General Carbonic plant prior to the time that you moved?

The Court: The snow tanks, do you mean?

Mr. Caughey: Prior to the time that you moved the snow tanks there?

A. I may have gone over the day before, or something like that. I know I did not go around there much.

Q. You did not make the arrangements for moving?

A. None whatsoever.

Q. Did you have charge of the moving?

A. Yes.

Q. Did you have charge of the installation of the [1664] snow tanks after they got over to the General Carbonic plant? A. Yes.

Q. Was the demand for dry ice just as bad in 1926 *was* it was in 1925? In other words, were you still in the same fix; that you could not supply it?

A. Yes.

The Court: Bad or good, depending on which side it was? A. Bad for me.

The Court: Bad from your standpoint?

A. It was.

(Short recess.)

The Court: Proceed.

Q. By Mr. Caughey: These modifications that you have testified to as having been made, they were all made

(Testimony of Walter Lee Hood)

on one machine, were they not,—the first one that you saw that came there and was installed at Maspeth?

A. I think so, yes, sir.

Q. The other machine that was there, but you weren't sure whether it was installed or not; it had a hopper on, did it not? That was part of the machine?

A. That was part of the machine as it was delivered.

Q. I mean a hopper, in the same sense that the machine had a hopper when you first came to Maspeth?

A. Yes, sir.

Q. You referred to Mr. Josephson coming to the plant with Mr. Martin, I believe, didn't you? [1665]

A. Yes, they came together. I think I said either Mr. Martin or Mr. Josephson brought the people.

Q. Who was Mr. Josephson?

A. He was connected either with Dry Ice or Prest-Air. I never knew his official connection.

Q. Do you know his initials? A. No.

Q. Do you know his first name?

A. I thought I did, but I am not sure of it,—Walter Josephson.

Q. When the move was made to General Carbonic plant from Maspeth, as I understand your testimony, you moved all the equipment from Maspeth?

A. I am sure we did. The break was quite clean.

Q. You did not leave any equipment there?

A. I am sure we did not leave anything.

Q. As a matter of fact, it is your recollection that this first machine that you said was installed at Maspeth, that you saw, and others like it, they weren't brought over to General Carbonic, were they?

(Testimony of Walter Lee Hood)

A. I don't know whether we took them or whether they took them back to Eppenbach's, or where they were taken for storage.

Q. You don't remember seeing them after that?

A. Yes, I saw at least one of them I know, at the Eppenbach storage yard. [1666]

Q. That was the only one you saw?

A. There might have been two. I know at least one machine was placed in Eppenbach's storage yard for some time after this.

Q. Did you ever use any of those—make any use of them in the manufacture of snow, to your knowledge?

A. We did not, to my knowledge.

Q. You never saw them in operation at any place?

A. No.

Q. And particularly during that time, up to May, 1929?

A. No.

Q. When you moved to the General Carbonic plant did you have a shipping department there?

A. We had one man who handled the shipping.

Q. Did you have a separate room for the shipping?

A. No.

Q. Did you have an office force there?

A. No.

Q. No office force at all?

A. Unless you want to call this shipping clerk an office force.

Q. Did you have a separate phone, so that people could phone in and order dry ice there?

A. I don't think we did. I am not sure of that, but I don't think we had a separate phone.

Q. You don't know whether you did or not? [1667]

A. I couldn't say definitely. I don't think we did.

(Testimony of Walter Lee Hood)

The Court: You are now speaking about Maspeth?

Mr. Caughey: No, I am speaking about General Carbonic. You understood my question to be General Carbonic?

A. Yes, General Carbonic, is the way I understood it.

Q. You met Mr. McLaren when you came there, you say? A. Yes.

Q. He complained about the loss of gas, did he?

A. After we got in operation.

Q. How long afterwards did he begin complaining?

A. Very soon.

Q. And this conversation that you testified to having with him, did that take place the first time he complained?

A. It might have been the first or the second. The conversation was rather similar all the way through, various and sundry.

Q. The first one, do you remember the first conversation you had with him about the loss of gas?

A. As I say, within a day or two; as soon as we got into operation Mr. McLaren remarked on the extreme loss of gas—large amount of gas lost.

Q. He remarked that to you, did he? A. Yes.

Q. Was anybody else present?

A. The workmen were around. I don't know of anybody else. [1668]

Q. You don't know whether they heard what he said; is that correct?

A. No, I don't; presumably not.

Q. Mr. Martin was not there at that time; is that correct?

A. I don't think he was there at the first conversation on the subject.

(Testimony of Walter Lee Hood)

Q. What did you actually say at the first conversation, if you can remember; if you can't remember, give the substance.

A. I certainly can't remember the definite words over that period of time.

Q. That's the reason I said if you could not, to give the substance.

A. He criticized our methods from the standpoint of loss of gas, which his plant was having to work and compress and sent over to us liquefied. I told him we were doing the best we could in closing it, and keeping it as much enclosed as possible, and holding down the loss as much as possible with that equipment, but that we had had equipment which was self-contained, and not open to the atmosphere, and this was used in making the blocks of ice, and therefore did not have these losses, and I explained the machine to him, and what we had done.

Q. You are sure you explained the machine to him?

A. Certainly. That was the only defense we had; [1669] the only answer I had to him was what we had done, and what we hoped and expected to do.

Q. What do you mean by "defense"? You were losing gas, weren't you?

A. We were losing gas, yes, that is true. I told him we were at least going to try to do better.

Q. Did you tell him you were going to put some of those machines in there at the General Carbonic plant?

A. No, I did not tell him anything like that, because I did not know any such thing.

The Court: You mean by "defense", that was your only argument?

A. The only counter-argument I had.

(Testimony of Walter Lee Hood)

Q. To keep him from kicking you out?

A. Yes, sir.

Q. By Mr. Caughey: Did you draw up any sketches to show him what you had?

A. I wouldn't recall. I don't think it was necessary.

Q. Did you describe the structure in detail?

A. Enough so I felt sure he knew what I was talking about.

Q. You felt sure? A. Yes.

Q. Did he indicate he knew what you were talking about?

A. I couldn't say that he did. He didn't indicate otherwise. The assumption was he knew what I was talking [1670] about.

The Court: He quit asking questions, anyway, did he?

A. I told him my defense; that was the best I had to offer.

Q. By Mr. Caughey: Did he ask any questions at all about the construction? A. I don't remember.

Q. You would not remember that? A. No, sir.

Q. You had other conversations with him at later times about the loss of gas, did you? A. Yes.

Q. And you again told him about this first machine, or other machines?

A. That was the gist of our conversation. He would complain about the gas, and I would say: Well, we are doing the best we can under the conditions. We hope to get back to the other conditions.

Q. Did you explain the machine again to him?

A. I don't think so. I don't think it was necessary to go into it each time we talked.

(Testimony of Walter Lee Hood)

Q. Did he ask any questions at the conversation, and ask you to explain the machine to him?

A. I don't recall.

Q. Or make any sketches about it?

A. I don't recall. [1671]

Q. Do you recall whether he asked you why you were not using these machines at the time?

A. I am reasonably sure I told him, but I don't recall his asking.

The Court: What did you tell him?

A. That we were not using them because of the sized block desired; that they were not competent of making them, and it would take an entirely new machine to do that.

Q. That is, new in the compression chamber?

A. It would have had to be new all over, to change from $3\frac{1}{2}$ by $3\frac{1}{2}$ by 8 to 10-inch cubes.

Q. Larger?

A. No part would have been usable except the nozzle.

Q. You don't mean it would have to be changed in mechanical principle?

A. Not in principle.

Q. But in proportion?

A. In proportion all the way through.

Q. By Mr. Caughey: Did you consider making such changes in that machine you saw at Maspeth when you first went there? Did you at that time consider making that machine capable of making 10-inch blocks?

A. That, or improvements on it, yes.

Q. What do you mean by improvements?

A. We hoped to improve it.

Q. I am talking about the size of the blocks. [1672]

A. Yes, the idea was to make the machines to make larger blocks.

(Testimony of Walter Lee Hood)

Q. Did you give consideration to the difficulties you would have in the operation, in making 10-inch blocks?

A. Certainly.

Q. Wasn't that one of the reasons you discarded that idea entirely?

A. I don't know that we discarded it entirely. It was still, so far as I know, alive when I left there.

Q. In 1929 it was still alive?

A. Didn't I state I had seen the machine in the new plant at Elizabeth?

Q. When you built that plant at Elizabeth you put in snow tanks, didn't you? A. Yes.

Q. How many snow tanks did you put in at Elizabeth?

A. To the best of my remembrance there were three lines of four each.

Q. In those snow tanks at Elizabeth you performed the same operation as you did at Maspeth? A. Yes.

Q. Substantially? A. Substantially the same.

Q. When you moved to General Carbonic, did you make 10-inch blocks there? A. Yes. [1673]

Q. Did you make those 3½-inch cylindrical blocks also?

A. I don't think so. I remember making a substitute therefor: cutting the 10-inch blocks into three pieces, or nine pieces, and cutting off the edges and making them hexagonal, to substitute for the cylindrical.

Q. To substitute for the square?

A. For the cylindrical shaped.

Q. You have no recollection whether you made cylindrical blocks when you moved to General Carbonic?

A. No, I don't know whether we made any after moving over there or not. I know after we were over there

(Testimony of Walter Lee Hood)

that we cut 10-inch blocks to substitute for the 3-inch blocks, and made discs.

The Court: You say, for the *Schraffts* container you made two cuts each way?

A. Two cuts each way, and chopped off the corners, and made them hexagon instead of cylindrical or round discs.

Q. By Mr. Caughey: Do you recall at Maspeth the manufacture of a hollow shafting with a bag on it for making snow in the bag?

Mr. Miketta: May I hear the question?

(Question read by the reporter.)

Q. By Mr. Caughey: Do you remember that, a hollowed-out shaft? In other words, a shafting that had been hollowed out, and a bag attached to the end of it for the purpose of [1674] making snow in the shafting, and afterward being transferred to the bag? Do you remember any such arrangement? A. No, sir.

Q. Do you remember any such arrangement when you moved to General Carbonic? A. No.

Q. You have no recollection as to that at all?

A. I don't recall. Mr. Josephson, if I may add, was always interested in bringing in some kind of gadget, and making all kinds of things. I haven't any idea of the number and variety. I may have seen it.

Q. He was an inventor, was he?

A. He had a fertile mind. I don't know whether he was an inventor or not. [1675]

Q. By Mr. Caughey: Do you recall any conversation at which you were present and Mr. McLaren was present and Mr. Martin was present and at which there was dis-

(Testimony of Walter Lee Hood)

cussed as to the loss of this gas in the General Carbonic plant?

A. I am certain that on several occasions I was at the start of that conversation, but when my superiors discussed things I generally got in the background; I would drift off.

Q. You do not recall being present at any such conversation?

A. No, sir. I would make it a point not to be.

Q. By the Court: Well, you mean that you would be there at the start of it, when they began to start talking about the waste gas, and then you would just depart?

A. Or any other conversation between Mr. Martin and Mr. McLaren I would make myself scarce, considering it was his affair and not mine.

Q. By Mr. Caughey: Were the relations between the officials and employees of General Carbonic and the Dry Ice cordial? A. Certainly.

Q. During all the period of time you were there?

A. To the best of my knowledge; yes, sir.

Q. There was no friction concerning this loss of gas at all?

A. No personal friction; no. They objected to it, naturally. [1676]

Q. And this conversation that you recall Mr. McLaren having with Mr. Martin, do you recall anybody else being present?

A. Yes; on many conversations with Mr. Martin and Mr. McLaren.

Q. Well, let us take the first one that you remember. Was that after you first had your conversation with Mr. McLaren about loss of gas?

(Testimony of Walter Lee Hood)

A. I wouldn't say that, whether Mr. Martin or I—which one of us had the first conversation on the subject.

Q. You can't recall, is that correct?

A. No; not which conversation was first. I can't recall any order thereof.

Q. As I understand your testimony, you do not recall being present or overhearing any conversation between Mr. McLaren and Mr. Martin relative to the loss of gas, that is, what was actually said?

A. No; not what was actually said, more than the opening of the conversations.

Q. And do you recall whether anybody else was present at any of the others and actually overheard any conversation you had with Mr. McLaren as to loss of gas?

A. No, sir.

Q. Or as to you talking about these other machines you had?

A. No, sir; I don't know of any witnesses. [1677]

Q. Did you ever have any conversation with Mr. Cole about loss of gas, to your knowledge?

A. I wouldn't know. I doubt it.

Q. You do not remember any such conversation?

A. No. I simply met Mr. Cole when he was there.

Q. Was Mr. Cole there very frequently?

A. Oh, I saw him there occasionally. He might have easily been there many times when I would not see him, because he was usually in the General Carbonic's office while I was in the other part of the plant.

Q. When did Dry Ice Corporation move from General Carbonic's plant? A. From General?

Q. From, leave there?

A. That is not definite in my mind at all. We moved to Yonkers in '27; we opened up the Yonkers plant in

(Testimony of Walter Lee Hood)

'27, to the best of my memory; and there was some overlap there, in which I think we probably operated both places during the summer of '27.

Q. Where were you during the summer of '27?

A. - Skittering between the two.

Q. You were at both places? A. Yes, sir.

Q. Have you got a definite recollection as to that?

A. Very definite.

Q. When you say "summer" what months do you mean? [1678]

A. June through September.

Q. Is it your definite recollection that you were operating in Yonkers prior to July 4, 1927?

A. No. I can't define it there, except I do—I am reasonably sure that we operated both places. I know we operated both places during the summer of '27.

Q. But you are not specific as to what month?

A. No.

Q. Overlapped, is that correct?

A. No. I would hesitate to make a statement on that.

Q. And you have no definite recollection as to when you left General Carbonic as to the month?

A. No.

Q. Sometime in the summer of '27?

A. It might possibly have been fall. I say during the summer. I am sure we were operating both points. Now, just when it was discontinued at General I would not say.

Q. And you are not sure whether it was before or after July 4, 1927 that you definitely left General?

A. No; but I am reasonably sure it was after that.

Q. Are you sure that you did not go back to Maspeth and have some operations at Maspeth in 1927, when you moved from General Carbonic?

(Testimony of Walter Lee Hood)

The Court: "When you moved"? It is not clear.

Q. By Mr. Caughey: After you left General Carbonic in 1927, whatever that date was, are you sure that Dry Ice [1679] Corporation did not go back to Maspeth and manufacture dry ice at Maspeth?

A. I am indefinite on that, sir.

Q. Are you sure that it was not in the fall of 1926 that you left General Carbonic, and that you did not move to Maspeth and stay there that winter and then move back to Yonkers the following summer?

A. I don't think so.

Q. Are you sure about that?

A. Yes, sir; I am reasonably sure of that.

Q. Have you anything to base it on except your recollection? A. That is all.

Q. You do not recall moving back to Maspeth from General Carbonic plant?

A. There is something hazy in my mind, but I do not definitely recall it.

Q. But you have a hazy recollection that there was some move made, is that correct?

A. There was something in there, some connection with Liquid, but I don't remember what it was.

Q. Did you move all your snow tanks from General Carbonic's to Yonkers? And when I say "all snow tanks" I mean the ones that were at General Carbonic's?

A. Yes; I am sure we moved all of our equipment out of the way. Some of them were discarded and new ones replacing [1680] them when we went to Yonkers. No. I beg pardon. No. There was an overlap there. We had new stuff at Yonkers. We operated in General after going to Yonkers, opening Yonkers.

(Testimony of Walter Lee Hood)

Q. Are you sure you opened Yonkers in 1927?

A. Yes, sir.

Q. That you put all new equipment in at Yonkers, did you?

A. I think so; to the best of my memory.

Q. And you did not move any of the snow tanks from General Carbonic to Yonkers, is that correct?

A. I don't think so.

Q. Where did you move those to when you moved them from General Carbonic? A. I don't know.

Q. You have no recollection as to that?

A. No; I don't remember.

Q. Do you know whether or not Dry Ice was operating at Maspeth in the fall of 1927?

A. I can't say definitely.

Q. You were not there?

A. If they were operating I was there.

Q. But you do not remember being there?

A. I don't remember that.

Q. You had charge of just the Yonkers plant, did you, of the Dry Ice?

A. I had charge of the operations. [1681]

Q. Of the entire production? A. Yes, sir.

Q. Regardless of where it was, is that correct?

A. Yes, sir.

Q. The fact that you lived and maintained a residence down at—what point? Where was this, College Point or Cottage Point? A. College Point.

Q. College Point—would indicate to you, would it not, that you were not only superintending operations at Yonkers, but at some place else?

A. Not necessarily.

(Testimony of Walter Lee Hood)

Q. You would have lived down there at College Point even though you were only operating at Yonkers, is that correct?

A. Had I thought we were going to be at Yonkers for any great length of time, I might have moved there, but as it was, I lived in College Point and, as I say, Belleville, New Jersey.

Q. Did you have any knowledge what length of time you were going to be in Yonkers when the plant was moved there?

A. None whatsoever.

Q. How long did you stay at Yonkers?

A. Until after we got manufacturing at Elizabeth, which was in, I think, June of 1928.

Q. That would make it approximately a year, is that correct? [1682]

A. Something like it; about that.

Q. And you did not maintain a residence at Yonkers during that period of time?

A. No, sir.

Q. You came back every evening?

A. (Witness nodding).

Q. Who are you working for at the present time?

A. W. L. Jones & Company.

Q. And where is that concern located?

A. Houston, Texas.

Q. You came here from Texas to testify in this case?

A. Yes, sir.

Q. And, I presume, your expenses are being paid?

A. I hope so.

Q. You hope so. When did you last see Mr. Martin?

A. Prior to seeing him here?

Q. Yes, sir. Oh, you saw him here, did you?

A. Yes, sir; I saw him here.

(Testimony of Walter Lee Hood)

Q. When did you see him here?

A. Well, two or three times. I saw him the day he left, on last Monday.

Q. Let us put it this way: When did you arrive here? A. On Friday night, about 10:30.

Q. And Mr. Martin left Monday?

A. Yes, sir.

Q. So you saw him several times in between? [1683]

A. Yes, sir.

Q. You talked over this matter with him, did you not? A. We pointedly did not.

Q. Never talked with Martin at all?

A. I talked to Mr. Martin.

Q. But not about this matter?

A. But not about this. He specifically requested me not to talk to him about it when I arrived.

Q. Did you read Mr. Martin's testimony in this case?

A. I have not.

Q. You examined the exhibits prior to testifying, didn't you, some that were shown to you here in court, or photostats of them; and I refer specifically to Defendants' Exhibits O and P which were—

A. I would have to see them.

Q. I will show them to you.

Q. By the Court: You were not in court here at all while Mr. Martin was testifying, were you?

A. No, sir.

Q. But you have been in court off and on since on Monday?

A. No, sir; I don't think I was in court—today is Friday—I think Wednesday was the first time I was in this court.

(Testimony of Walter Lee Hood)

Q. Wednesday? A. I think so.

Q. Of this week? [1684] A. Yes, sir.

Q. By Mr. Caughey: I show you Defendants' Exhibit O, which is a drawing which was previously shown to you. Do you recall that one and Defendants' Exhibit P? A. Yes, sir.

Q. You saw photostats of those, if you did not see the originals? A. No, sir.

Q. You never saw them at all? A. No, sir.

Q. You did not make any extended examination of these when they were shown to you, just glanced at them, isn't that correct? A. Yes, sir.

Q. You have talked to Mr. Miketta about the case, or Mr. Foster, haven't you, certainly?

A. Mr. Miketta.

Q. I mean over the matter as to what the testimony had been in the case?

A. No, sir; as to what my testimony would be.

Q. He never told you what Mr. Martin had testified to at all? A. Definitely not.

Q. Never said anything about that?

A. No, sir.

Q. Have you been in the dry ice business since you left [1685] the Dry Ice Corporation?

A. No connection—well, yes. I went to Texas and was in it for approximately three years after leaving the Dry Ice Corporation of New York.

Q. But since then you have had no contact with the dry ice industry?

A. Yes; for approximately six months. The latter part of '40 and early '41 I was doing some field engineering on a dry ice refrigerator car, a freight car, which is

(Testimony of Walter Lee Hood)

the only connection I have had with the industry since those days.

Q. You have had no occasion during all these years from the time you left the Dry Ice Corporation to recall what was done there, have you? I mean you haven't made any effort to go back and fix the dates or anything up to the time that you were contacted in connection with this case? A. I don't think so; no, sir.

Q. You never gave it much thought, did you?

A. No. Occasions when Mr. Martin and I would get together we would talk about those days and the things we did.

Q. Have you seen Mr. Martin since you left the Dry Ice Corporation? A. Yes, sir.

Q. Frequently?

A. Oh, a couple of year intervals, possibly.

Q. But those conversations were just general, [1686] weren't they? A. Just general; yes.

Q. And when were you first contacted in connection with this case, coming here to testify?

A. About 1:00 o'clock of Wednesday of last week.

Q. Did somebody call you? A. Yes, sir.

Q. Did you check over any records or make any attempt to check over any records to get any information or fix any dates?

A. I looked hurriedly to see if I had any records; and, as I say, I was first contacted about 1:00 o'clock or 1:30 p. m. and I caught an 8:30 train out of Houston; and when contacted I was out in the field some distance from town, so I didn't have much time to even look for records.

(Testimony of Walter Lee Hood)

Q. And you did not find any records, is that correct?

A. I didn't find any.

Q. So your testimony here is based solely upon your recollection?

A. Solely upon my recollection thereof.

Q. You did not see Mr. Martin in Texas before you came here at any time within the last several months or so?

A. No, sir.

Q. And talk about this case?

A. No, sir. I was on construction of the Pine Bluffs Arsenal with Mr. Martin for fourteen months which ended the [1687] first of July, a year ago.

Q. But I presume you were busy enough on that?

A. We were.

Q. Not to talk about anything except that job, is that correct?

A. I don't think the word was ever mentioned during this 14 months.

The Court: The word "dry ice"?

A. The word "dry ice" or the thought. We didn't have time. May I correct myself there? I said, "July, a year ago." Last July, the first of last July.

The Court: Would you like to see if there are any other questions you would like to ask?

Mr. Caughey: I may have one or two more, but not very many more, if we could adjourn.

The Court: We will adjourn, gentlemen, until 1:00 o'clock. If anything happens that you do not get here right on the minute, don't worry about it, don't break any speed laws or don't kill anybody, because I will not hold you right to the minute.

(Whereupon a recess was taken until 1:00 o'clock p. m. of the same day.) [1688]

AFTERNOON SESSION.

1:00 O'CLOCK.

WALTER LEE HOOD,

recalled.

Cross-Examination

resumed.

Q. By Mr. Caughey: Mr. Hood, what kind of a nozzle did you use on these snow tanks when they were put in operation at General Carbonic; I mean nozzles for the influx from the liquid line into the tank?

A. My memory on that is a little indefinite. I simply know that it was constricted and a nozzle used.

Q. Was it a piece of copper tubing with the end pinched; do you remember that?

A. Well, I am certain that that was used at times; yes.

Q. Do you recall whether that was used at General Carbonic or not? A. No; I do not.

Q. Do you recall that the officials, particularly Mr. McLaren, at General Carbonic complained as to the use of that kind of a nozzle?

A. No; I don't remember that specific complaint.

Q. You don't remember that? A. No.

Q. You don't remember changing those nozzles?

A. I remember changing them; yes; that we used a real manufactured nozzle as well as crimped copper tubing. [1689]

Q. Where did you get the manufactured nozzle, do you remember?

A. Oh, presumably made by Eppenbach, as they were doing practically all of our work of that type.

(Testimony of Walter Lee Hood)

Q. But you do not remember?

A. But I don't remember specifically; no. They may have been busy and had somebody else do it.

Q. And you don't remember of there being any complaint of your using a nozzle, copper tubing nozzle just pinched together with a pair of pliers? You don't remember that?

A. I don't remember any complaint on that. I know that we used it that way, and also real nozzles which were made for the purpose.

Q. By the Court: Adjustable? A. No, sir.

Q. By Mr. Caughey: When you left Liquid Carbonic, they had just one compressor unit in there?

A. In Liquid Carbonic?

Q. Yes. A. That plant—

Q. At Maspeth.

A. —in compressing the carbon dioxide gas to liquefaction?

Q. Yes. A. No, sir.

Q. How many did they have? [1690]

A. Oh, at least two, possibly three.

Q. The reason you left—I mean, when I say “you,” the Dry Ice Corporation—the reason that the Dry Ice Corporation left there was because they could not get enough gas, was that correct? A. Yes, sir.

Q. Do you know whether Liquid Carbonic began the construction of additional capacity after you left, after Dry Ice Corporation left there and moved to General Carbonic? A. I do not recall.

Q. Did you go back to Maspeth after you had moved to General Carbonic during the period of time you were at General Carbonic? Did they?

A. I wouldn't know.

(Testimony of Walter Lee Hood)

Q. You don't remember whether they built additional capacity and built buildings to house it or not?

A. I don't think they put in any buildings, any new buildings. I don't recall any.

Q. You don't recall they put in a corrugated steel or truss and steel building at Maspeth after Dry Ice Corporation left there, as you testified?

A. I don't recall their putting in anything of that kind.

Q. Did you ever go back to Maspeth after you left there, as you testified, in 1925?

A. I think, as I stated, I had a hazy memory of something about Liquid, but I don't know what it was; that is, I [1691] can't put my finger on anything specific.

Q. Who was in charge at Liquid Carbonic, that is, of their plant, when you were there?

A. When we went there?

Q. Yes.

A. Mr. Albee, I think the name was, known as "Cap Albee."

Q. Do you remember any of the other employees' names?

A. No; I don't think so. I don't think I recall any others by name.

Q. When you moved to General—at that period, I mean—pardon me. Did you know some employees at a later period?

A. His son was there later in charge, after him.

Q. What year would that be?

A. I don't know when that change was made. I think that was still in '25 all right.

(Testimony of Walter Lee Hood)

Q. Was the son in charge during the period of time that Dry Ice Corporation was at Liquid Carbonic?

A. Part of the time.

Q. He was? A. I think so.

Q. And Mr. Albee retired, did he?

A. I suppose he did. He was quite an elderly man.

Q. And his son took his place?

A. That was my memory of it.

Q. And your recollection is that occurred during the [1692] period of time that the Dry Ice Corporation was at Maspeth?

A. Yes. I don't think the elder Captain Albee was there very long, a few months.

Q. Did all of the Dry Ice employees move over to General Carbonic plant when you moved, as you testified, in 1926?

A. Well, some of them may have left us at that time, some of the ones that lived in the immediate vicinity.

Q. You don't remember?

A. Well, we didn't leave any there. In the main, all that we had moved over.

Q. Do you recall of hiring any additional employees when you moved to General Carbonic?

A. Oh, we were hiring and losing them steadily; yes. I know that we hired several while over there.

Q. But you can't recall any specific names?

A. No. I recall specific names of one or two that we had.

Q. I believe you have mentioned Mr. Fitzpatrick.

A. Those two engineers, but I mean of the operators, several Polish boys. I remember one's name, Steve Prosick, and another was Joe something.

(Testimony of Walter Lee Hood)

Q. Have you seen Mr. Fitzpatrick in recent years?

A. Not since I left there.

Q. Haven't seen him, and you don't know where he is?

A. Not the faintest idea. [1693]

Mr. Caughey: That is all, your Honor.

Redirect Examination

Q. By Mr. Miketta: Mr. Hood, you stated that the nozzles used on the snow tanks were not adjustable. Have you testified whether or not the liquid inlet lines on those snow tanks that you used at Maspeth and at General Carbonic contained valves on those lines?

Mr. Caughey: Will you read me the question?

(Question read by the reporter.)

A. I don't know whether I testified to the fact of valves or not, but certainly they were there.

Q. I think you also testified that you did not know whether or not General Carbonic had any rules against visitors?

A. Yes.

Q. So far as you know, to the best of your recollection, were there any rules against having visitors see the equipment employed by you and Mr. Martin at that plant?

Mr. Caughey: Objected to as being asked and answered.

The Court: I am not sure there was a distinction between the major work there on the part of the landlord, and the work done by Martin and his associates. You may answer.

A. I don't know of any ruling by anybody. I presume that the Liquid Corporation—

The Court: Never mind what you presumed. You don't know of any rule? [1694]

A. No, I know of no rule.

(Testimony of Walter Lee Hood)

Q. By Mr. Miketta: Were individual blocks made individually, one at a time only, when you first came to Maspeth, or were they made at other periods of time?

A. On the small machine?

Q. Yes, on the small $3\frac{1}{2} \times 3\frac{1}{2}$ machine.

A. The trend was more toward the continuous operation; whether they went back and tried it any more or not, I can't say.

Q. In the event, Mr. Hood, you were confronted with documentary evidence proving that you were making solidified carbon dioxide at Maspeth in 1927, would that change your testimony regarding the unitary machines which you saw, assisted in modifying, and operated at Maspeth, between about April 10, 1925 to some time in June, 1925? A. No, sir.

Q. You have a very clear recollection of those machines during that period of time?

A. That's the period when my recollection is very clear on that, because it was entirely new and novel to me.

Q. Do you recall whether or not an extension or nose piece was used on that first machine which you observed at Maspeth, during the month of April, 1925?

A. I think I have testified that I did.

Q. When you testified that there was a hopper on the second machine at Maspeth, in the spring of 1925, will you [1695] please state what you meant by the hopper?

A. The cylinder with the conical bottom, wherein the snow was formed.

Q. Was that on the second machine?

A. Whether it was on the machine, or there with it, I am not sure; whether it was mounted or not.

(Testimony of Walter Lee Hood)

Q. You referred to a Seal-Right container that was used by Schraffts. Can you describe that in greater detail?

A. It is a double package which they put out to distribute ice cream. They used a pint-sized cylinder paper cup, waxed paper cup. They put that inside the quart with a corrugated pasteboard lining between the two. Then a cake of ice was put on top, and a little disc of corrugated paper to insulate it all fitted neatly inside the quart container.

Mr. Miketta: That will be all, your Honor.

Q. By the Court: Mr. Hood, it is my recollection that Mr. Martin, when he was on the stand, testified that you moved to Sixth Street and East River in September of 1926, and that shortly after you arrived there Mr. McLaren came in and saw the evolution or dissipation of gas out around the door, and so forth, and complained about it, and said that they needed all of their CO₂ for bottling, and did not like the wastage; and he complained about it. He said at that time that Mr. Fitzpatrick, if I remember correctly, and Mr. Sherwood, who was the engineer for the Dry Ice Corporation, were also present; and he testified particularly about a conversation [1696] shortly after you moved in there, and certainly not later than October, but as I remember, he thought it was in September, in which you and Mr. McLaren were there, in which Mr. Martin told Mr. McLaren about your using and proposing again to use a machine in which the formation of the snow, the tamping and the pressing were all done, and were all to be done in one housing?

A. Enclosed.

The Court: Enclosed in one housing, in order to save that wastage of gas. Do you remember any such conversation?

(Testimony of Walter Lee Hood)

A. I remember many conversations to that effect, but I don't remember specifically Mr. Martin, Mr. McLaren and myself and Mr. Sherwood—Mr. Sherwood being the other engineer whose name I did not remember—and Fitzpatrick all grouping and talking of it. It was a constant source of conversation whenever Mr. McLaren was present.

Q. And to the best of your judgment, either all or some of those men, certainly Mr. McLaren, were there when such conversations took place?

A. Mr. McLaren was the man who instigated the conversation by complaining of the loss of gas.

Q. My recollection of it is that Mr. Lyon asked Mr. Martin whether he was the one that told Mr. McLaren about the combining of the three operations in one housing, or did Mr. McLaren suggest it to him, and Mr. Martin said: Oh, no, I suggested it to Mr. McLaren. Do you remember who it was [1697] that made that statement?

A. No, sir, I would not, because I don't see why it would be suggested when we had had that machine, and that was the only answer I had against his statement of loss of gas.

The Court: I have no further questions.

Q. By Mr. Foster: Do you recall, Mr. Hood, that at any conversations which you had with Mr. McLaren he suggested to you, or to anyone else in your hearing, that your operations of this snow machine and separate press should be combined in a unitary single and closed machine?

The Court: The suggestion coming from Mr. McLaren?

(Testimony of Walter Lee Hood)

Mr. Foster: Yes.

A. I don't recall such.

Q. By Mr. Caughey: You wouldn't say that such conversation did not take place, and that he did not make such suggestion?

A. No, I certainly would not. If it had been made I would have countered with the fact that we had already done that.

The Court: You may step down. [1698]

WILLIAM HOWARD CLAPP,
recalled.

Direct Examination

Mr. Foster: I might state to the court that the reason for making some additions or qualifications to these answers is because, I think principally, of the lack of knowledge of counsel, who did not learn very much of dynamics or fluid at Cal-Tech, or I seem to have forgotten.

Q. Will you point out the answers you wish to qualify to the court? A. The first on page—

Mr. Caughey: May I ask what volume you are referring to?

Mr. Foster: Yesterday's volume, 14.

A. Page 1516; it is Marks Mechanical Handbook.

Q. Line 2? A. Yes, line 2. I said Kent's.

Page 1518, line 11, "It must be 60.4 pounds gauge approximately."

Q. In other words, you wish to correct the answer appearing at line 11 to read as you have indicated?

A. Yes, sir. And in line 13 add "about 60.4 gauge"; and in line 19 after "Yes, that is possible." Strike the

(Testimony of William Howard Clapp)

rest as being inaccurate. It is not false, but it is inaccurate. On page 1519, line 2 "I haven't figured it, but I believe it would if the exhauster were not operated."

Q. In other words, you want the answer on line 2 to read that way, Professor? [1699]

A. Yes, sir. On page 1521 add again "If the exhauster were not operated."

Q. That is line 5?

A. That is line 5. And in line 12—

Q. I think there is an extra word in line 3, if the court please. It is shown as "above".

A. I think that should be "about" instead of "above" in line 3. And in line 12—

Mr. Caughey: Just a second, until I get that clear.

Mr. Foster: I think it is a typographical error there, Mr. Caughey. Line 3, where it should read "fed from 60 and about down to half", instead of "and above down". Perhaps I said it.

The Court: You didn't. I remember it very definitely, because I thought you said "above down to half or one pound" and I thought that was such a peculiar construction. What you really said was "about down to half or one pound", in the disjunctive, rather than the conjunctive.

Mr. Foster: That was what I meant to say.

The Court: That one word may be corrected, on the third line of the transcript on page 1521 from "above" to "about".

A. Line 12 I would add after "we were running from 30 down to one with the valve cracked, instead of 60 to one under static condition", and strike the balance. And

(Testimony of William Howard Clapp)

also, after "static condition" add "through the same valve opening."

Page 1526, lines 16 to 17 add "provided the exhauster is [1700] taking away the gas so as to maintain atmospheric pressure on the suction side of valve 80a."

Mr. Caughey: May I have that?

(Answer read by the reporter.) [1701]

A. In 1527, line 1, change to read: "With the same valve opening, it would take longer than it would if the pressure on the outlet side of valve 80a were atmospheric."

The Court: Read that.

(Answer read by the reporter.)

A. And in line 6, to read: "It would be somewhat longer."

1529, add: "with the same valve opening"—

The Court: What line?

A. Line 18. Also, a word of explanation. The cycle of the process contemplated includes starting with a chamber containing a body of liquid CO_2 and vapor at, say, 70 pounds pressure and ending with the chamber at zero pressure, at which time the solid can be compressed.

(1) If we are working against a back pressure of 30 pounds, then the time elements comprise dropping from 70 pounds to 60.4 pounds, then the time of solidification, then dropping from 60.4 pounds to 30 pounds. The cycle is not complete at this point and we must then provide some means for relieving the pressure from 30 pounds to zero gauge. This total time would be greater than in this operation.

(2) If the valve is open to the atmosphere or to zero gauge pressure, then the pressure will more rapidly drop

(Testimony of William Howard Clapp)

from 70 to 60.4; in fact, there would be super-cooling, and it will probably drop down to 60.2 or under 60.4, depending upon the rapidity of withdrawal of the gas, and solidification [1702] will take place more rapidly and the pressure will drop more quickly to zero gauge. So, comparing the total over-all time of those two cycles, we find that the second is very much shorter.

Q. By Mr. Caughey: May I ask what you have been reading from, Professor Clapp? Is that something you wrote out before you came to court?

A. Yes; these are notes I dictated this morning. I might say I haven't done any work in thermo-dynamics in years on this question, and they were ambiguous.

Mr. Foster: I will admit mine were very ambiguous.

A. And immediately put me into making assumptions which might not have been consisted with the conditions; at least we were not all agreed.

Q. By the Court: In this answer you are assuming that you go down to zero in pressure when you start your compression operation?

A. Yes, sir. Of course, if we were to immediately remove the entire wall of the chamber, it would all burst into ice, dry ice, almost instantaneously.

Q. Would it make any particular difference if, instead of going to zero, you went to 20 pounds?

A. No. It might make a difference in total time. That is a very complicated thing.

On page 1531—

Q. By Mr. Foster: Is there anything on 1530? [1703]

A. Yes; the question on 1530, which was answered "Yes". "The pressure in the chamber would drop some—"

(Testimony of William Howard Clapp)

Q. What line is that, Professor?

A. Line 21. "The pressure in the chamber would drop somewhat from 60.4 gauge if the valve were opened widely." Now, that was—

Q. By Mr. Caughey: You mean that is what you are adding now, sir, is that correct? A. Yes, sir.

And on page 1531, line 3, a word of explanation. Add: "With a valve partly open and a charge of liquid CO₂ in the chamber at a pressure of 70 pounds the pressure on the other side of the valve is important. If the pressure on the other side is zero gauge, the cycle will rapidly proceed in the chamber. If the pressure on the other side of the valve is 62 pounds, you would never get solidification of the liquid. In the critical region, around 60.4 pounds, a small change in pressure differential exerts a large effect upon the rapidity with which solidification takes place."

And in 1533, line 16, my answer was interrupted. Add: "A further period during which the pressure is reduced to atmospheric pressure."

1541, line 26, substitute "opening gas outlet valve widely will reduce the pressure in chamber 50 slightly more during solidification than if the valve were opened slightly." That doesn't make sense. "Opening gas outlet valve widely [1704] will reduce the pressure in chamber 50 during solidification slightly more than if the valve were opened—opened slightly." Yes; that is right.

(Testimony of William Howard Clapp)

1543, line 7, add: "About 60.4 gauge, but various valve openings may be employed."

Q. That is line 8, is it, Professor? A. Line 7.

Q. That is the question, isn't it?

A. The question was—oh, yes.

Q. It would be line 8?

A. Line 8 was the answer.

And to line 13, add: "And the solidification would proceed more rapidly."

On 1544, line 4: "About 60.4 gauge."

Q. Is that all? A. Yes; that is all.

Mr. Foster: I might offer this comment to the court: I phrased my questions with respect to these pressures and releases very inexpertly, and the object of my line of examination and object was to point out through the testimony of the witness that the exhauster, in accordance with the teachings of the patent, had a function which it performed, which was not the return of low-pressure gas from a gas holder to the chamber 50, to bring the pressure up from atmospheric to 40 or 50 pounds when the CO₂ liquid inlet was shut, and that following the teachings of the patent, such [1705] operations were not practical, were not possible without changes not taught in the patent, but that the exhauster did have this function of withdrawing the gas from the chamber, the exact opposite to that which I had understood might be urged for it in a commercial operation: and I did not attach all the conditions to my questions that needed to be attached to make the questions and the answers thereto intelligible.

(Testimony of William Howard Clapp)

Q. That completed what you wanted to advise the court of, Professor Clapp? A. Yes, sir.

Mr. Caughey: In view of the corrections, there is one more question I would like to ask of Professor Clapp.

The Court: Yes; that is what I was wondering. You have a right to.

Q. By Mr. Caughey: Professor, if you were in a dry ice plant and you had your hand on that valve 80a and it was cracked to such an extent that there was triple point ice being made in the chamber, say, in ten minutes, and you wanted to make the next block a little faster, which way would you turn the valve; would you crack it open or would you close it?

A. In your first case what is the pressure in the chamber?

Q. Well, it doesn't make any difference, as a matter of fact.

A. Well, it must be 60.4 or lower if you are going to [1706] freeze.

Q. All right; 60.4 or more. A. Yes.

Q. Say it takes 10 minutes to make triple point ice and you wanted to make it faster, what would you do?

A. You would open up the valve.

Q. You would open it up? A. Yes.

Mr. Caughey: That is all.

Q. By the Court: There is nothing else you could do, is there? A. (Witness nodding head.)

Mr. Foster: I will call Mr. McLaren to the stand, if the court please. [1707]

MALCOLM W. McLAREN,

called as a witness on behalf of defendants, being first duly sworn, was examined and testified as follows:

The Clerk: Will you state your name, please?

A. Malcolm W. McLaren.

The Court: May Professor Clapp be excused if he wishes?

Mr. Caughey: As far as we are concerned.

Mr. Foster: Yes, sir.

Mr. Caughey: May I ask if they are calling him as their own witness here? Is that my understanding, your Honor?

The Court: There has been no foundation laid to indicate otherwise.

Mr. Caughey: Yes, sir.

Direct Examination

Q. By Mr. Foster: Mr. McLaren, where do you reside? A. In New York.

Q. And what is your age? A. 58.

Q. You are one of the applicants named for the patent in suit, is that correct? A. That is right.

Q. And by whom are you now employed?

A. The Liquid Carbonic Corporation.

Q. One of the plaintiffs here? Are you connected with either of the plaintiffs here? A. No, sir.

[1708]

Q. Have you ever been employed by other of the plaintiffs? A. No.

(Testimony of Malcolm W. McLaren)

Q. Why are you here in California now?

A. I came out to listen to this case.

Q. Were you requested to do so by the plaintiffs or the plaintiffs' counsel? A. Yes.

Q. And your expenses are being paid by the plaintiffs while you are here? A. That is right.

Q. Was it your understanding when you came to California that you were coming in order to testify in this case? A. If needed.

Mr. Foster: I have a certified copy, a copy certified by the United States Patent Office, of the application of Malcolm Wate McLaren, serial No. 145,093, filed October 29, 1926, which has heretofore been delivered to the plaintiffs' counsel for inspection, and which I ask that the clerk mark for identification with the defendants' next exhibit number.

The Court: It may be so marked.

The Clerk: OO.

Mr. Foster: And also a copy certified by the United States Patent Office of the file wrapper and contents of the application for the patent in suit, which I ask be also marked for identification as Defendants' Exhibit PP.

The Court: It may be so marked. [1709]

Mr. Foster: Your Honor, I think sufficient foundation has been laid to enable me to conduct the remainder of this examination under the Rule 43(b).

The Court: Oh, I don't think so. He is not a party defendant or a party plaintiff or a managing agent, officer, or director of the plaintiff.

Mr. Foster: I think under the provisions of the first part of that Rule I should be enabled to examine him with leading questions as if upon cross examination.

(Testimony of Malcolm W. McLaren)

The Court: He has not shown that he is an adverse witness.

Mr. Foster: He is an applicant for the patent in suit, your Honor.

The Court: I know, but that does not make any difference. He has not indicated that he is antagonistic or that he is adverse. We assume, of course, that he is going to tell the truth. I have forgotten the exact wording of the Rule, although I had something to do with its drawing, but my recollection of it is that the first part of it has to do with his being an adverse—

Mr. Foster: Unwilling witness.

The Court: —or an antagonistic witness; and the next has to do with his being an officer, director, or managing agent of the corporation. Certainly he does not qualify under the second part of it.

Mr. Foster: No, your Honor; that is clear.

The Court: And he certainly is neither unwilling nor [1710] hostile, because he did not fight to get on the stand. He may not testify to just what you want him to, but that does not mean that he is hostile.

Mr. Foster: Very well, your Honor.

Q. I direct your attention, Mr. McLaren, to page 18 of this certified copy of an application marked Defendants' Exhibit OO for identification. Do you recognize your signature there? A. This one right here; yes, sir.

Q. And did you execute this application under the oath appearing on page 18 at the date shown, that is, October 25, 1926?

A. You mean I signed it on that day?

Q. Yes. A. I did.

(Testimony of Malcolm W. McLaren)

Q. And at the time you signed it, I presume you were familiar with the specification and claims and the drawings which constituted part of the application?

A. Well, I wouldn't say that I was familiar with it, because I didn't know anything about patents.

Q. Well, you did see—

A. And I had to leave that to the attorneys who were handling it.

Q. I direct your attention to pages 19, 20, and 21 of Defendants' Exhibit OO for identification; were those drawings part of the application when you executed your oath to it? [1711]

A. Those drawings were given to the attorneys by the company and they made up those sketches from the drawings.

Q. You saw the drawings before you executed this oath on page 18? A. Oh, yes.

Q. And you understood that the application was directed to the apparatus shown on these drawings on pages 19, 20, and 21? A. That is right.

Q. That is correct, isn't it?

A. That is right; yes, sir.

Q. And that apparatus illustrated on those drawings, pages 19 to 21, and subject of your patent application, illustrates a device for solidifying and compressing carbon dioxide, is that correct? A. That is right.

Q. And directing your attention to page 10 of that application, beginning at line 8 thereof, I find the statement: "The method of forming gases into a solid which comprises confining the gas under pressure, spraying the gas into a closure to form solid particles, and compressing the particles into a solid mass." When you executed the

(Testimony of Malcolm W. McLaren)

oath to this application was it your understanding that when reference was made to "forming gases into a solid" there was meant forming of liquid carbon dioxide into a solid?

A. Yes; but I had nothing to do with these claims.
[1712]

Q. I understand. I am asking you for your understanding, not whether you prepared them.

A. That is right; and I did not prepare them.

Q. But that was your understanding?

A. That—

Q. That the term in the sentence I have read you—

A. Read it again to me, please.

Q. —"forming gases into a solid" meant forming liquid carbon dioxide into a solid.

A. It meant converting liquid carbon dioxide into a solid, dry ice.

Q. This apparatus illustrated in these drawings at pages 19 to 21 of your application was devised by you, is that correct?

The Witness: Could I have that question again?

Mr. Foster: Yes; with the court's permission.

(Question read by the reporter.) A. No.

Q. Directing your attention again to page 18, where your signature and oath appear, it is stated that: "He verily believes himself to be the original, first, and sole inventor of the improvement in method and apparatus for forming gases into solid blocks described and claimed in the foregoing specification." Did you have reference to the apparatus illustrated on pages 19, 20, and 21 when you executed that oath? [1713]

(Testimony of Malcolm W. McLaren)

A. No; I had it in reference to the parts that I had designed myself and that the—I thought it was a mistake being made when I signed it; and I thought there was two mistakes being made; first—

The Court: Speak just a little louder, Mr. McLaren.

A. I figured there was two mistakes being made; first, the machine had not operated, had not proven itself. I asked the attorney that question and he said, "That don't make any difference." Mr. Cole was out of town. Mr. Summers, the president of the corporation, asked me to give these people sufficient information to start a patent, and I did.

Now, I would like to have this particular point understood. I knew nothing about patents. I was not even interested in a patent at that time.

Q. By Mr. Foster: Did you read the oath before you signed it in this application, this oath on page 18 of Defendants' Exhibit OO for identification? [1714]

A. I don't think I read even the patent.

Q. Do you mean by the last answer to tell the court that you did not devise or invent the machine which is illustrated on pages 19, 20 and 21 of this application, Defendants' Exhibit OO? A. Not all, no, sir.

Q. Will you point out what part you did invent?

A. I will be glad to.

Q. You are now referring to Fig. 1 of the drawing?

A. That's right. This was the machine that was built.

The Court: Talk so this gentleman can hear you. He has got a hard enough job as it is.

A. Your Honor, this is the first time I have been on the witness stand.

(Testimony of Malcolm W. McLaren)

The Court: Don't get worried. Tell what you know, and if you don't understand the question appeal to me. Talk just like you would to a business man.

A. Mr. Cole and I, he being my superior with the General Carbonic Corporation, were working together.

Mr. Foster: May I interrupt the witness, and move to strike out the answer as not responsive to the question, your Honor. The question was to point out what part of the apparatus in these drawings he invented.

The Court: Yes, do that. You will have a chance to explain that, Mr. McLaren.

A. This spiral member. [1715]

Mr. Foster: You are referring to the spiral member identified as numerals 6 and 7, Fig. 1?

A. That is right, 6 and 7.

The Court: Take it slowly.

A. The cross member that holds the lower end of this.

Mr. Foster: That is the cross member 5?

A. That's right. It is held up here by studs through the side wall to support the end of the shaft, where the power was put on to drive it.

Q. By shaft, are you referring to the shaft 6?

A. That's right. This was a tamping arrangement to force snow down into the chamber.

The Court: Conical in shape; being spiral it naturally automatically kept the chamber clean and forced it in a downward direction?

A. Yes. I would like to explain why the idea appealed to me.

The Court: Go ahead.

A. I was in Saratoga, in Mr. Summers' pulp and paper mill, and I was a similar idea working, pushing pulp paper

(Testimony of Malcolm W. McLaren)

from the lower floor to the upper bin, and I thought to myself—

The Court: Just exactly the opposite, upwards?

A. I thought that would be a swell way to tamp this snow into the chamber.

Mr. Foster: You will understand when I am interrupting [1716] with respect to numbers, Mr. McLaren, it is for the reason that on reading the reporters' record anyone will understand what you are pointing to. Continue.

A. I have given the spiral member?

Q. Yes.

A. And the cross member to support the shaft in the neck of the snow chamber?

Q. Yes.

A. Then the coil around the chamber, inside of the outer shell. I thought that was a fine way to incorporate a heat exchanger, because the unsolidified gas would cool the liquid off, and the same piece of apparatus would do the same thing. This device here was mine.

Q. Are you referring— A. To the dash pot.

Q. 48 and 49?

A. The dash pot to receive the ice when it was ejected from the press. This electrical device was mine.

Q. Are you now pointing to 46, Fig. 1? A. Yes.

The Court: What was that for?

A. This electrical device to start this motor, when we got it on there, so when this member closed this would start revolving, and start it going down.

Q. By Mr. Foster: When you say this was your invention, are you referring to the motor 46? [1717]

A. That was mine.

(Testimony of Malcolm W. McLaren)

Q. Not only the motor 46, but the associated electrical circuit?

A. That's right. We never used this heater.

Q. You never used either 46 or 49?

A. That's right.

Q. What is 49 for, for the record?

A. 49 is so that when the ice came out, ejected out, it would go on to the dash pot; with the weight of the ice would go down below the chamber.

The Court: It would get it out of the way?

A. Yes, so the machine could be closed without taking the block away.

Q. By Mr. Foster: Anything else on Fig. 1?

A. There is nothing on Fig. 1.

Q. If you will turn to the next figure. You did not invent the closed chamber in which the liquid carbon dioxide is converted to a solid and a gas is shown on Fig. 1?

A. No. This arrangement was all thought out together, with the exception of the apparatus I have mentioned.

The Court: By all thought out together, do you mean before that time?

A. Yes, prior to that time. Mr. Cole gave me instructions to go ahead and build the machine to include these things, because I thought they were swell ideas from an engineering standpoint; and the machine was built, and was [1718] set on the floor, and ready to be piped up, when Darby and Darby, attorneys, came over. The machine was sitting there. I couldn't quite understand why they wanted a patent on something that had never been connected up or worked, but knowing nothing about

(Testimony of Malcolm W. McLaren)

patent laws I said, "This is new to me. I will give you the dope," so I went at it, and gave them this stuff so they would get it lined up.

Q. By Mr. Foster: By "this stuff", you were referring to Fig. 3, page 21, of Defendants' Exhibit OO?

A. Yes, that was given, the cycle: you have to bring the liquid into the machine, and take the gas back, and you have means for compressing. I used the gas before it went to the condenser. I explained that to them. I used the hot gas before it went to the condenser, to operate the cylinder, the piston; and they came back over with the apparatus. I checked it over, and I found they were putting liquid carbon dioxide into the cylinder instead of hot gas. I said, "You will never operate the thing that way." So I made them change that, and they brought that application over on the 14th of October, 1926.

Q. I don't like to interrupt you, but I would like you to point out on the other drawing, the other sheet, to which you have not yet referred, Fig. 2, page 20, what part you invented of that apparatus.

A. It's the same thing.

Mr. Morris: I assume the question is intended to mean [1719] solely?

Mr. Foster: Yes, what part he has individually invented.

The Court: Yes.

A. The heat exchanger around the inner chamber, between the chamber.

Q. The heat exchanger, is marked by the numeral 88?

A. Yes; it's the same coil.

The Court: All you did there was to move the heat exchanger from the outside, and used it as a part of the unitary apparatus?

(Testimony of Malcolm W. McLaren)

A. I tried to include it in the apparatus, so as to eliminate the necessity of building other equipment.

The Court: You just put it on; added it on?

A. That is right.

The Court: There wasn't anything new about the idea of having a heat exchanger at all?

A. No, that was very necessary.

Q. By Mr. Foster: Is there anything else illustrated in Fig. 2 which you individually invented?

A. This little cylinder up here was my idea, for pulling this platen back.

Q. The little cylinder up there, referring to the cylinder 84, having the plunger 83 in it? A. Yes.

Q. The function of the cylinder and plunger, as I [1720] understand it, was to move the closure head 67 from a position closing the upper end of the chamber to a position above the upper end of the chamber?

A. No, what we call a pullback cylinder, to pull this platen back here, and this double-acting, instead of single-acting.

Q. Let me see if I understand you correctly. The piston 84 and the plunger 83 is the hydraulic means for operating this platen 67; is that correct?

A. Just pulling it back.

Q. Hydraulic liquid is placed in the cylinder?

A. This drawing here is one made by the attorneys, but it must have been made by some sketch I had given, but these two things I remember were mine.

Mr. Foster: These two loose prints, of two sheets of the drawing, may I have the clerk mark them for identification?

The Court: They may be so marked.

(Testimony of Malcolm W. McLaren)

Mr. Foster: Fig. 1, as Defendants' Exhibit OO-1, if your Honor is agreeable. It is just a copy.

The Court: All right. Fig. 2 is OO-2.

All you did was to contrive a convenient arrangement to hydraulically pull that piston with a platen attached to it, back up? A. That's right.

Q. By Mr. Foster: How about the hydraulic cylinder [1721] 57 in the bottom of the figure, Mr. McLaren? Did you devise that yourself?

A. No, the hydraulic piston was more or less worked out together on that.

Q. In regard to Fig. 2—

Mr. Caughey: When he says "worked out together," may we have what he means?

The Court: Yes, meaning it had been worked out previously?

A. Yes, the principle was all worked out by Mr. Cole and I before, before anything was ever done to it.

Q. By Mr. Foster: In regard to the illustration in Figure 2 of the apparatus there, did you individually and separately invent that?

A. Are you thinking about the same drawing?

Q. Yes, Fig. 2, the print which is OO-2, is a positive print of that same sheet of drawings.

A. That is a copy of this, but this has been colored?

Q. Yes. A. It is the coil here?

Q. 88.

A. That's an idea of the method of drawing the gas out of the chamber. This was a cylinder.

Q. By "this" are you referring to the piston 67?

A. That's right.

(Testimony of Malcolm W. McLaren)

Q. By this means or idea for getting the gas out of [1722] the cylinder, are you referring to the openings 68?

A. Yes. Very little thought was given to this, because it was such a wild idea, we were afraid of it.

The Court: By "this"?

A. This vertical machine. In other words, the company did not want to have anything to do with it. They said, No, we are afraid of that thing.

Q. By Mr. Foster: With respect to this drawing of the apparatus, Defendants' Exhibit OO-2, what else did you individually and alone invent, besides this heat exchanger coil 88, these apertures in the plunger 67, the apertures being 68, for the passage of gas, actuating the cylinder 84, and the piston 83 at the top?

A. This was a sketch I had given to the draftsman W. E. Ditmar. I had this included, to pull the piston back.

Q. Are you referring to the cylinder 84, and the piston 83?

A. Yes. I kind of got a laugh out of that machine, because if you got any slippage, that wouldn't go back up.

Q. I understand you individually and separately designed and invented the heat exchange coil 88, the apertures 68 and the piston 67?

A. Not the pistons. The apertures alone, were one way of keeping the piston tight, and allowing the gas to go in.

Q. That was your idea, individually and alone? [1723]

A. Yes.

Q. It was also your idea, individually and alone, to have the hydraulic cylinder 84 at the upper end?

A. To pull the other one back.

(Testimony of Malcolm W. McLaren)

Q. To pull the piston up and down? A. Yes.

Q. What else of the apparatus, Fig. 2, did you individually and alone invent?

A. Nothing that I see at all.

Q. You stated that a machine such as is illustrated in Fig. 1 of the sheet of drawings, page 19, was built. Was that machine ever successfully operated?

A. As it was?

Q. As shown in this drawing?

A. No, that's the reason I wanted counsel—

Q. If you will try to respond to my questions, I am sure your counsel—

A. I can always get along better, if I get the facts before you.

Mr. Caughey: Your Honor, this witness is his witness. I am not his counsel. I want that understood.

The Court: He is trying to bring out certain things, and I am sure you will have plenty of time to do that. We haven't a jury and I won't get confused.

A. The only thing I wanted to bring out, I wanted to get clear here that this patent got going so fast, without [1724] even my knowledge of it, until it was applied for October 14, 1936—

Mr. Miketta: May it please the court, if he is going to be our witness, I would suggest that the examination be conducted as the ordinary examination.

The Court: You see the difficulty, Mr. McLaren; later you can testify to these things, but just now they are calling you as their witness, and under the law they are bound by everything you say. Therefore, they don't want you to do anything, except answer their questions, and later counsel for the plaintiffs will bring all these matters

(Testimony of Malcolm W. McLaren)

out. He will keep track of them. We are on a certain part of it now, and it is highly technical. In other words, sometimes it is difficult to call the other fellow to testify for you. You only want to ask him certain particular questions, and get certain particular answers. I may ask you a lot of questions before we get through, but you answer these particular questions now, and let it go at that.

Q. By Mr. Foster: I direct your attention to page 26 of Defendants' Exhibit OO, and to the statement appearing in the middle paragraph: "there are in commercial use apparatus from which the drawings of the specification were made and fairly large quantities of commercial CO₂ in the form of blocks are now being made." Is that statement true?

A. It is not. That is just another attorney's mistake. The machine had not been connected up. [1725]

Q. Let me direct your attention to the time when that statement was made, Mr. McLaren. That statement was contained in a document dated November 15, 1927. Was the statement true as of that date?

A. Yes, but not of this machine as it is there.

Q. By saying "not of the machine as it is there", you mean not the machine illustrated in Fig. 1, page 19, or Fig. 2, page 20 of this exhibit; is that right?

A. Neither one. That's right.

Q. Then again, on page 34 of Defendants' Exhibit OO I notice the statement: "It may be pointed out that applicant's device has been used to produce solid carbon dioxide blocks in large quantities, and that the assignee company is doing a large volume of business in this line." That statement was made in a document which was dated

(Testimony of Malcolm W. McLaren)

May 1, 1928. Was the statement then true of either the apparatus illustrated in Fig. 1 or Fig. 2, pages 19 and 20 of this exhibit?

Mr. Morris: May I inquire whether that statement was made by the witness?

Mr. Foster: I think it was not. It appears in the document that was signed by the attorneys for the applicant.

Mr. Morris: May I inquire at this time whether the previous statement was made by this witness, or by counsel?

Mr. Foster: I think it was in a similar document made by his then counsel.

Mr. Morris: Very good. [1726]

A. Let me have the question.

(Question read by the reporter.)

A. Where is that here?

Q. By Mr. Foster: Page 34.

A. What is the date of this? Is this the one of Darby & Darby's?

Q. Yes, May 1, 1928.

A. I have never seen this at all.

Q. My question is, is that statement true as of this date?

A. Not until after the changes were made in the machine.

Q. Was the statement which I read true as of that date, May 1, 1928? A. It was earlier than that.

The Court: Was it true as of that particular date?

A. Let me get the date again.

The Court: May 1, 1928.

A. Yes, that's true.

(Testimony of Malcolm W. McLaren)

Q. By Mr. Foster: That machine which had been used to produce solid carbon dioxide blocks in large quantities by May 1, 1928, was it the machine illustrated in Fig. 1 of the drawings, page 19, Defendants' Exhibit OO?

A. This one here?

Q. Yes. A. After the changes were made. [1727]

The Court: Read that statement on page 34 again.

Q. "It may be pointed out that applicant's device has been used to produce solid carbon dioxide blocks in large quantities."

The Court: Then it was not true that that device had been used for that purpose on that date, was it? It was a different device?

A. It was arranged differently, your Honor. I thought I made that clear, not until after the changes. It never did work until it was changed.

The Court: So, so far as that particular device is concerned, the statement was not true?

A. That's right.

Q. By Mr. Foster: And the statement was not true as of that date, so far as the particular device shown in Fig. 2, page 20, of Defendants' Exhibit OO, is concerned?

A. No, that's right; it was not true.

Q. Was there ever operated, to your knowledge, to produce blocks of carbon dioxide for commercial use, the machine illustrated in Fig. 1 on page 19 of this exhibit?

A. Not in its present condition.

The Court: Not in the condition as indicated in the drawing? A. That's right.

Q. By Mr. Foster: Is your answer the same with respect to the apparatus shown in Fig. 2, page 20 of the [1728] same exhibit? A. Yes.

(Testimony of Malcolm W. McLaren)

(Short recess.)

Q. By Mr. Foster: Mr. McLaren, do you and your family own any stock in the Metropolitan Carbonic Company? A. Yes, sir.

Q. How much? A. One-third.

Q. And the Metropolitan Carbonic Company owns the stock in International Carbonic Company, does it not?

A. I believe so. I have never seen it.

Mr. Morris: I don't know what company the learned counsel for the defendants is referring to in that question. I don't know which one of the two plaintiffs he is referring to, if he is referring to either.

Q. By Mr. Foster: Does the Metropolitan Carbonic Company own any stock in International Carbonic Engineering Company?

A. I don't know whether it is the Engineering Company or not.

Q. You do know that the Metropolitan Carbonic Company owns stock in one of the two plaintiff companies, International Carbonic Engineering Company, or International Carbonic, Inc., do you not?

A. I do, but I am not in a position to identify which one it is. [1729]

Q. Do you, or any member of your family, own any stock in the Carbonic Engineering Company?

A. No, sir.

Q. Or any stock in the International Carbonic, Inc.?

A. No, sir.

Q. Aside from the financial interest represented by your stock ownership in the Metropolitan Carbonic Company, and its ownership of stock in one of the plaintiff

(Testimony of Malcolm W. McLaren)

companies, what financial interest do you have in the outcome of this litigation?

Mr. Caughey: I object to that as assuming something not in evidence.

The Court: Change the form: Do you have any financial interest.

Q. By Mr. Foster: Do you have any financial interest in the outcome of this litigation?

A. I am interested in the stock that I own in Metropolitan. [1730]

The Court: Outside of that do you have any other?

A. No, I have not.

Q. By Mr. Foster: Are you an officer or director of the Metropolitan Carbonic Company? A. No, sir.

Q. Do you wish the court to understand that it is now your statement that you should not have signed this oath on page 18 of Defendants' Exhibit OO, where you swore that you believed yourself to be the original, first and sole inventor of the improvement in method and apparatus for forming gases into solid blocks, described and claimed in the foregoing specification? A. I do.

Mr. Morris: May I have the last question and answer?

The Court: Yes, read the question and answer.

(Question and answer read by the reporter.)

Mr. Foster: That is all.

The Court: Nothing, Mr. Miketta?

Mr. Miketta: No.

Mr. Morris: No cross examination.

Mr. Caughey: Of course, if your Honor please, we expect to use this witness.

The Court: Surely, you may bring him back and ask him all the questions you want to. You may step down,

Mr. McLaren, and remain available to the court until excused.

Mr. Foster: If the court please, we have some exhibits [1731] here that I will identify, that were given numbers for identification during the plaintiffs' prima facie case; that is, they were marked for identification as defendants' exhibits. Defendants' Exhibit A for identification is a reproduction of a sketch made on the blackboard, and that is offered now. It has been here for days for comparison, and I offer it into evidence as Defendants' Exhibit A.

The Court: It may be received as explanatory of the testimony of the witness who was on the stand.

[Note: Defendants' Exhibit A will be found in the Book of Exhibits at page 1357.]

Mr. Foster: Likewise, there was marked for identification as Defendants' Exhibit G a reproduction of the chart upon the blackboard. That is offered into evidence as Defendants' Exhibit G.

The Court: It maybe-received for the same purpose.

[Note: Defendants' Exhibit G will be found in the Book of Exhibits at page 1366.]

Mr. Foster: During the testimony of Dr. Jones there were marked for identification photostats of pages of his book, as Defendants' Exhibit C and E. They are offered into evidence as Defendants' Exhibits of the same letters.

The Court: They may be so received.

[Notes: Defendants' Exhibits C and E will be found in the Book of Exhibits at pages 1360 and 1364.]

Mr. Miketta: May it please the court, at this time I would like to offer into evidence as Defendants' exhibit next in order a certificate of title pertaining to the James

W. Martin application, serial No. 152,754, which is the application filed by Mr. Martin December 6, 1926, to which reference has been had heretofore.

Mr. Caughey: I object to it upon the ground that no [1732] materiality has been shown.

Mr. Miketta: The certificate of title, your Honor, shows the ownership from Mr. Martin to Dry Ice Corporation of America; then to Dry Ice Corporation of America, which was the 1927 corporation; then to the American Dry Ice Corporation; then to Adico Development Corporation, and then concludes with the merger of Adico Development Corporation with International Carbonic, Inc., showing the title in this application was transferred from the original assignee to one of the plaintiffs herein.

The Court: Objection overruled. It may be received.

The Clerk: Exhibit QQ. [1733]

Mr. Miketta: I would also like to introduce into evidence, your Honor, a certified document from the records of the United States Patent Office, comprising a decision of the Examiner of Interferences in Interference No. 59,938, between Cole and McLaren, the applicants for the patent in suit herein, and an application of Gustav T. Reich, this decision of the Examiner of Interferences awarding priority as to certain claims or counts or structures to Gustav T. Reich, for the purpose of indicating what the patentees, Cole and McLaren, did not invent.

The Court: It may be received and marked the next number.

The Clerk: RR. Is this in evidence, also?

[Note: Defendants' Exhibit RR will be found in the Book of Exhibits at page 1581.]

Mr. Miketta: Yes. I would also like to introduce into evidence a certified copy of a decision of the Examiner of Interferences, dated May 9, 1932, pertaining to Interference No. 62,902, between Cole and McLaren, the patentees of the patent in suit, and Gustav T. Reich, such decision awarding priority of the subject matter in issue in this interference in favor of Gustav T. Reich.

Mr. Caughey: May your Honor please, I think I should put a formal objection in the record as to materiality, because I really do not think it is material. That is, perhaps, something your Honor should have an opportunity of determining but, nevertheless, I want to make that objection.

The Court: I think it is proper to make the objection. I think it may be material. I will accept it subject to a [1734] motion to strike [1735]

* * * * *

Mr. Foster: The defendants offer in evidence also the file wrapper of the patent in suit, which has been marked for identification, it being offered as Defendants' Exhibit PP.

The Court: It may be received. I thought there was a PP already.

Mr. Foster: It was for identification, merely marked, your Honor, and I am now offering it into evidence.

The Court: Didn't you have PP just a few minutes ago?

The Clerk: The same thing, your Honor.

The Court: The same thing.

The Clerk: Only for identification.

The Court: All right.

(Testimony of W. L. Benson)

Mr. Caughey: May I inquire for what purpose it is being offered? [1738]

Mr. Foster: For the purpose of enabling the court to construe the claims of the patent in suit in the light of the proceedings had in the Patent Office in respect to it. It is a certified copy, your Honor, of the file wrapper.

I also offer the certified copy of the McLaren application as Defendants' Exhibit OO. It has been marked with those letters for identification.

The Court: Both may be received into evidence. [1739]

* * * * *

W. L. BENSON,

one of the defendants herein, called as a witness on behalf of defendants, having been previously duly sworn, was examined and testified as follows:

The Clerk: Have you been sworn?

The Witness: Yes.

Cross Examination

Q. By Mr. Caughey: Mr. Benson, I believe you are one of the defendants in this case, are you not, at the present time?

A. Yes. [1747]

Q. Who gave you instructions for making the drawings which you made, which are in evidence here as Plaintiffs' Exhibits 3 and 4, and also some modifications and corrections, which are in evidence as Defendants' Exhibits 9 and 10? Defendants' Exhibits 9 and 10 I show you.

(Testimony of W. L. Benson)

Mr. Foster: That is objected to as assuming a fact not in evidence, that he was given any instructions with respect to 9 and 10.

The Court: Objection sustained.

Q. By Mr. Caughey: You remember of making some drawings in this case, don't you, Exhibits — let me have Exhibits 3 and 4.

Mr. Foster: Those are 3 and 4 before the witness, aren't they?

Mr. Caughey: That is correct. Thank you, Mr. Foster.

Q. We are referring to the drawings which you have before you, which was Plaintiffs' Exhibits 3 and 4. You made those, did you not?

A. The originals.

Q. Yes. Those are prints of some original drawings that you made; isn't that correct? You recognize them?

The Court: Answer audibly so the reporter can get it.

A. Yes.

Q. By Mr. Caughey: And when did you make them, if you know?

A. Well, the date shown on this is correct.

Q. And what date is that? [1748]

A. It is not too clear. It says October 19. — I don't know what it says. I can't see it.

Q. You put the date on when you made them, did you?

A. Yes.

Q. The date you put on was the correct date as of the making of the drawings, is that correct?

A. Yes.

Mr. Caughey: We have to get the reporters here to take this testimony down, so if you do not give a yes or no answer we can't hear.

(Testimony of W. L. Benson)

Q. Who told you to make these drawings?

A. I was instructed by Mr. Polderman.

Q. What were his instructions?

A. To endeavor to get a draftsman to make some drawings. No draftsmen were available. I had a little experience in drawing and I told him that I could make a reasonably facsimile, which I endeavored to do.

Q. What did he tell you to make drawings of?

A. The H.P.M. press and one of the Frick presses.

Q. Did he tell you why he wanted these drawings?

A. No.

Q. He did not tell you that it was pursuant to an order of court?

A. I might say he did say that we were being sued. I knew that.

Q. Did he tell you there was an order of court to make [1749] some drawings? Did he make that statement to you?

A. I don't recall.

Q. Did you go measure the presses when you made these drawings? Did you take any measurements or anything?

A. Rough measurements; in other words, not — I didn't draw the presses in any sense of the word detailed.

Q. He did not tell you to make detailed drawings?

A. That was not what I understood.

Q. What did you understand?

A. A reasonably accurate facsimile.

Q. Facsimile of what?

A. Of the H.P.M. press and one of the Frick presses.

(Testimony of W. L. Benson)

Q. Did that include the lines running in and out of the press, the inlet lines for the liquid and the outlet lines for the gas?

A. I understood that the inlet and outlet lines were to be shown; yes.

Q. And the valves?

A. Not all.

Q. Did you have any other drawings to which you referred when you made these drawings?

The Court: You mean of these machines?

Mr. Caughey: Yes, sir.

The Court: Or just design drawings for illustrative purposes?

Mr. Caughey: No. When he made the drawings 3 and 4 did [1750] he have any other drawings which he used in making the drawings?

The Court: Drawings of the apparatus?

Mr. Caughey: Of the apparatus, the Frick and H.P.M. presses.

A. I have at the plant a book, issued, a pamphlet, by the H.P.M. people showing photographs of the press, and also a drawing of the press, I believe, in miniature.

Q. Did you use them?

A. No.

Q. You did not use that at all. Then, when you made these drawings you just went to the press and looked at the press and made the drawings from the presses that were there in Niland, is that correct?

A. Yes.

Q. And took rough measurements of the presses?

A. That is correct.

Q. I believe you testified, that is in the testimony you swore to as correct, in which Mr. Foster made a state-

(Testimony of W. L. Benson)

ment, that you did not consider it was important to show the vent to the atmosphere, is that correct?

A. I might add or say that I didn't realize the importance of the drawing as a whole.

Q. Just refer to my question, Mr. Benson. Did you consider the showing of the vent to atmosphere important?

A. No. [1751]

Q. Mr. Polderman did not say anything to you about that at all, is that correct? A. That is correct.

Q. Did he tell you to make a drawing of how the press was operated? A. How it was operated?

Q. Yes. A. No.

Q. Did he tell you what legends to put on the drawings? A. No.

Q. And all the legends on there are your own legends, that you made up yourself, is that correct?

A. That is correct.

Q. No one gave you any assistance whatsoever?

A. No one gave me assistance, that is correct.

Q. When you were putting these legends on there did you intend that they should coincide with the normal operations of the presses?

A. I don't quite understand.

Q. Did you operate these presses down there at Ni-land? A. Did I, or could I?

Q. Have you actually operated the presses?

A. Yes, I have.

Q. You are in charge of those operations?

A. Yes, I am.

Q. How long have you been in charge of those operations? [1752] A. Since 1940.

(Testimony of W. L. Benson)

Q. In putting the legends on did you intend to put legends on that would indicate how the presses were normally operated by you?

Mr. Foster: I object to that as indefinite, unless the legends referred to by the question are identified.

Mr. Caughey: I am referring to the legends that appear at the right, particularly 1, 2, 3, 4, 5, on Exhibit 4, and the legend under "General Notes" on Exhibit 3.

A. I can't answer yes or no. I would like to say this: That I put the legends on, endeavoring to clarify the picture.

Q. Yes, and when you endeavored to clarify it, you endeavored to clarify it as you normally operated the plant?

A. I did not have that thought in mind when I did it.

Q. Then, when you put a legend on — if your Honor please, some of these legends have been crossed out on this drawing, so I would like to get our print, to see what they are.

The Court: Is the original here?

Mr. Foster: Yes, I think it is here, your Honor. We have the originals, Mr. Caughey.

The Clerk: They are marked for identification.

Mr. Caughey: I can tell from them what these are.

The Court: I wonder if you had better not put these in evidence? I don't think the Circuit Court would want to be monkeying with something they can't read. [1753]

(Testimony of W. L. Benson)

Mr. Foster: The defendants will offer it, your Honor. It is marked as Exhibit MM, and will be offered in evidence as MM.

The Court: It will be admitted in evidence.

[Note: Defendants' Exhibit MM will be found in the Book of Exhibits at page 1578.]

Mr. Foster: This Exhibit LL also has some alterations on, your Honor. If your Honor please, they are in identically the same state as they were when the prints, Exhibits 3 and 4, were made.

The Court: I guess they can't be admitted, unless you can identify the alterations specifically.

Mr. Foster: I think that has been done in my description of the testimony of this witness, but I can briefly state it.

The Court: All right, state it.

Mr. Foster: There is added to Exhibit LL, in each of the four figures, an indication of the vent opening, or vent line, with these legends, and the interior horizontal dimension of the snow chamber in the large figure to the left was slightly increased, and the vertical dimensions of the boss, marked "lower platen" in the same figure, were slightly increased, and the legend as to the scale, in the lower left-hand corner, which did read "scale one-half inch equals one foot" was changed to read "one and one-half inches equal one foot."

Mr. Morris: I want to inquire from my associate whether it wouldn't be desirable to refer to the originals

(Testimony of W. L. Benson)

which were filed in response to our interrogatories with the clerk, and [1754] which the clerk must have, because these are the drawings made years later. The inquiry of the witness now is as to the drawings which were filed two years ago.

The Court: That is correct. Let us admit these only for the purpose of explaining the testimony of this witness, that explanation being only to that part that was sworn to, so there will be that distinction. Then I presume we had better get them out of the interrogatories.

Mr. Foster: Does the court wish me to enumerate the changes in the original drawing MM?

The Court: If it has already been done in the direct testimony of this witness before, counsel, you don't need to do it again, unless Mr. Caughey or Judge Morris would like to have it.

Mr. Caughey: I don't think it is sufficiently clear in the record.

Mr. Foster: In Defendants' Exhibit MM there was added to each of the three figures a representation of a vent line and valve to atmosphere and legend "vent to atmosphere." I believe that was the only change.

Mr. Morris: If they can't be found, I have in my files blueprints annexed to the copies furnished to us. I think there is a legend on them.

The Court: Yes, just get them out, Judge.

Mr. Foster: The legends referred to by Mr. Caughey on these original drawings MM and LL, were not subject to any [1755] change.

Mr. Caughey: I believe that is correct.

The Court: What is the date indicated?

Mr. Foster: The date is October, 1942.

(Testimony of W. L. Benson)

The Court: No day?

Mr. Foster: No day in October; just "Oct. 1942." appearing on Defendants' Exhibit LL; and I find no date on Exhibit MM.

Mr. Morris: May I inquire whether the drawings LL and MM do not show the date of an amendment, which would indicate that these drawings were later drawings?

Mr. Foster: No, they do not.

The Court: About what date were these changes made which you have just described?

Mr. Foster: They were made about the date when we filed a supplemental and amended answer to the interrogatories, when we attached the prints with the changes; probably ten days before the opening of the trial.

Q. By Mr. Caughey: Referring to "General Notes" on the blueprint which I show you, which is Exhibit 10 to the interrogatories, a copy of which is in evidence as Plaintiffs' Exhibit 3, I believe at the right, under "General Notes" there is a notation in pencil "open chamber while pressing." Why did you make that notation?

A. The chamber is open while pressing.

Q. What was open? [1756]

A. The chamber.

The Court: Where?

Q. By Mr. Caughey: Where was it opened?

A. It was opened in two places; the bottom or lower platen was lowered to the point where there was a contact to atmosphere on the inside. Then at the top we have a valve, which is open to atmosphere.

Q. Referring to the lower platen — this is a drawing of the H.P.M. press, is it not? A. Yes, it is.

(Testimony of W. L. Benson)

Q. When you say the lower platen is lowered, you crack that a little bit in your operation, do you not, slightly?

A. It is lowered. "Slightly" is ambiguous.

Q. How much do you lower it?

A. Well, that will vary, but approximately an inch to an inch and a half.

Q. You don't lower it so the upper part of the boss is out of the chamber, do you? You never do that, do you?

A. Not completely out of the chamber, no, but there is free area. In other words, there is contact to atmosphere.

Q. In other words, some gas comes out, is that correct? A. Yes.

Q. When do you open that lower platen? When do you crack it, or open it?

A. After we close the blow-back valve, the liquid in that valve has been previously closed, so there is nothing [1757] coming into the press or going out of the press: we then open it to the atmosphere, to be certain there is no pressure within the chamber.

Q. As a matter of fact, you allow that blow-back line to remain open to relieve the pressure in the chamber before you vent to atmosphere at all, for quite a while?

The Court: Will you read that question?

The Witness: I did not understand it.

Mr. Caughey: Strike it.

Q. Isn't it a fact, in operating the blow-back line, as distinguished from the vent to atmosphere, you allow that line to be opened to allow the pressure to be reduced in the chamber by leaving that line open?

A. You want to know do we do that?

(Testimony of W. L. Benson)

Q. Yes. A. Yes.

Q. Isn't it also a fact that you start the upper piston or platen and press with it for a period before you crack that lower platen at all? A. Definitely no.

Q. You are sure about that? A. Definitely.

Q. Do you recall when counsel for the plaintiffs were at Niland in the early part of 1942, when a demonstration—or not a demonstration—but when they watched the operations at the Niland plant? Do you recall that? [1758]

A. I recall someone being there. I don't recall the date, however.

Q. You recall there was someone there. Do you recall that I was there, and I am Mr. Caughey?

A. I remember a man by the name of Peck, I believe.

Q. Was that Mr. Peck who is sitting here in the courtroom? A. I think so.

Q. Well, now, was that at the time that you made dry ice—at that time did you intend it should be the normal operation of the plant? A. Oh, yes.

Q. And isn't it a fact that at that time you started the press and pressed for a period of time before you opened the lower platen, before you cracked it at all?

A. No. Simultaneously, sometimes, they pull that lever. There is two levers; one brings the upper platen down, the other one lower the lower platen, and that is done simultaneously at times.

Q. By the Court: That is, concurrently with the beginning of the pressing operation?

A. That is correct, your Honor.

Q. By Mr. Caughey: Now referring to the legend on Defendants' Exhibit 10, which is attached to the interrogatories—that is 10 to the interrogatories—and as to

(Testimony of W. L. Benson)

No. 4 under "General Notes," reading as follows: "Upper ram [1759] open during pressing" is your testimony the same in connection with the H.P.M press, that is, what you mean by "Upper ram open during pressing," that is, that there was a vent to atmosphere and that you cracked the upper platen?

The Court: You referred to the other as the "H.P.M."

The Witness: This is the Frick now.

Mr. Caughey: This is the Frick I am referring to now.

The Court: Correct the question.

The Witness: What are you asking me to say?

Q. By Mr. Caughey: There is a legend on the Frick, as you will recall, that the lower ram—on the Frick press there is a legend which I call to your attention.

A. This is the H.P.M.

Q. Yes; on the H.P.M.; "open chamber while pressing" to which you previously testified. Now, on the Frick press drawing, which is Defendants' Exhibit 9 to the interrogatories, under "General Note No. 4: Upper ram open during press period," is that correct?

A. On the Frick press, all right.

Q. This note that I am reading here?

A. That note is correct.

Q. What did you mean by that note when you put it on there?

A. Simply that the upper ram is cracked and there is a passage from the inside of the chamber to the atmosphere to insure us that there is no pressure in that chamber before [1760] pressing.

Q. Allow some escape of gas, is that correct?

A. Allow that escape of gas.

(Testimony of W. L. Benson)

Q. If you had a vent to atmosphere, and only a vent to atmosphere, wouldn't that relieve all the pressure in the press?

A. I can't answer that question yes or no. It might and might not.

The Court: Do you mean ultimately, in time, or immediately, in the question?

A. Sometimes they plug, plug up, and we must be sure that there is no pressure there, if, for no other reason, safety reasons.

Q. By Mr. Caughey: When you say "they plug up" what do you mean plugs up?

A. The vent to atmosphere, the valve.

Q. You have had difficulty at times with that vent plugging up, have you?

A. We have from time to time. We have difficulty with all valves plugging at times.

Q. Then, as I understand it, this legend 4 on there, you meant that there was a line open to atmosphere and you cracked—

A. There was what?

Q. A line open to the atmosphere, a vent to atmosphere, is that correct? [1761]

A. That doesn't mean that.

Q. Doesn't mean that. What does that legend mean?

A. "Upper ram" means that the inside of the chamber is open to the atmosphere.

Q. Did you mean that the upper platen was raised to such an extent that it was entirely open?

A. Absolutely.

Q. And that it was up above that boss?

A. I wouldn't say that. I would say somewheres in there. It could, and sometimes it is in this case and sometimes it is not.

(Testimony of W. L. Benson)

Q. Gas would escape; was that the reason why it was cracked, so gas would escape if there was any in there?

A. That is the purpose.

Q. That is the purpose.

A. All gas in there will be relieved to the atmosphere.

Q. As far as the H.P.M. press is concerned did you lower that platen for the purpose of dislodging the block at all in the press after it was formed?

A. Repeat that, for I didn't understand it.

Q. I say, in so far as the H.P.M. press was concerned, did you lower that platen, crack that platen, for the purpose of dislodging that block so it would have a chance to drop down, the block that was formed by pressing?

Mr. Foster: I think that question assumes facts not testified to here. [1762]

Mr. Caughey: Oh, I think that this is cross examination, may your Honor please, and I have a right to interrogate this witness as to what his operations were.

Mr. Miketta: May the court please, the question is further objected to, then, on the ground that it is an attempt to confuse the witness, speaking of a block, because it is assuming the presence of a block at the time that lower platen is lowered slightly, which is not a fact.

The Court: Yes; I think the question is objectionable in form. I see what you are getting at, but I think you should reframe it. There is one purpose, of course, in the lowering of the platen that he has testified to, to permit the ready escape of gas to atmosphere. In addition, your point is: Do you sometimes use that also in order to help take the block out?

Mr. Caughey: Yes.

(Testimony of W. L. Benson)

A. I see that it has no bearing on it. If it does, I am unfamiliar with it.

Q. You testified that you operated that plant since 1940, is that correct? A. That is correct.

Q. Who gave you the instructions as to the operation of the plant when you took over or when you went there?

A. That is very difficult to answer, your Honor. Most of it, I think, came from myself.

Q. You just worked it out, did you? [1763]

A. I think so. I couldn't say.

Q. Did Mr. Wells give you any instructions as to operation?

Q. By the Court: Do you know who Mr. Wells is at all?

A. Oh, yes. Yes. You don't mind—I have to think about some of this.

The Court: Oh, yes; take all the time you want. I do not want you to be confused. If you do not understand the question, you say so. Mr. Caughey is not trying to confuse you.

Mr. Caughey: No.

The Court: He is simply bringing these matters into the record, so he wants you to be sure you know what he is asking.

A. Earl Wells undoubtedly gave me advice.

Q. By Mr. Caughey: Did he tell you to crack or lower that platen, for example, the lower platen in the H.P.M. press? A. No.

Mr. Miketta: May the court please, the question is objected to as ambiguous and not specifying what period of time is being contemplated by these instructions.

Mr. Caughey: At any time.

(Testimony of W. L. Benson)

The Court: The answer is "No," at any time?

Q. By Mr. Caughey: He did not?

The Court: During operations?

A. Earl Wells did not tell me.

Q. By Mr. Caughey: And there was a vent to atmosphere on [1764] the H.P.M. press when it was installed?

A. Yes.

Q. That was not installed, was it, until after the Frick presses were in; is that correct?

A. The Frick presses were there when I arrived there. After I arrived the H.P.M. was installed.

Q. Had you had any previous experience at all in the operation of CO₂ presses such as the Frick or H.P.M. presses prior to going to Niland in 1940?

A. Very little.

Q. You had no difficulty in operating those presses after you went there, did you?

A. Yes; we had quite a bit.

Q. In what respect?

A. Blocks blowing up was one, and poor quality of ice structure was another one.

Q. Do you know what caused the blocks to blow up?

A. I think I do. In my mind I do.

Q. Do you know? A. In my mind I know.

Q. What was it?

A. Pressure being pressed within the block, gas.

The Court: Now, that was hardly an answer to the question, as I interpret it. He asked you if you had any trouble in the operation and you answered with regard to the quality of the product. Now let us get back to actual operations, the [1765] making of the product, regardless of what the quality of the product was. Did

(Testimony of W. L. Benson)

you have trouble with valves freezing up or clogging up or anything of that kind?

A. We have always had trouble with valves freezing up.

Q. By Mr. Caughey: Occasionally valves would freeze up? A. Yes.

Q. By the Court: What else?

A. We had no trouble with the actual mechanism of the press. It went up and down at our command.

Q. By Mr. Caughey: And snow formed in the chamber; you had no difficulty in that, did you, at all?

A. Snow always formed in the press. We had to learn how to make what we considered a good product.

Q. What did you consider a good product?

A. One the customers accepted.

Q. What was that?

A. One that would stand up.

Q. And when you say "stand up" you mean would not melt rapidly and would stay together so it would not sublime quickly, is that right?

A. No; I wouldn't know about that particularly; one that didn't crack, crumble, explode.

The Court: Aren't we getting outside the scope of the cross examination now?

Mr. Caughey: Perhaps, a little.

The Witness: I don't know really about that. I am not at [1766] this end of it, your Honor.

The Court: You know the rule: If you go beyond the scope of cross examination, you make the man your witness and you are bound by his testimony.

Q. By Mr. Caughey: You never received any instructions from Mr. Miketta as to the making of these drawings, is that correct? A. No.

(Testimony of W. L. Benson)

Q. And the reason, as I understand it, the only reason you left the vents to atmosphere off was because you at that time did not consider it was of any importance?

A. Or oversight.

Q. Well, which was it?

A. I couldn't say. I would say oversight.

Q. In these drawings you do not show any means for returning; for example, in the H.P.M. press, you do not show any means for returning the upper cylinder, do you?

Mr. Foster: Objected to.

Q. By Mr. Caughey: Look at that drawing and —

The Court: I do not think that is clear, Mr. Caughey.

Q. By Mr. Caughey: In referring to the drawing of the Frick press, there is no means showing whereby that press can be brought back up, is there, after it is once pressed down?

Mr. Foster: Objected to as indefinite. I don't understand it yet, "bring the press back up." [1767]

Q. By Mr. Caughey: You understand the question, do you not, Mr. Benson?

The Court: The difficulty is that I do not, and neither will the Circuit.

Mr. Caughey: All right; I will strike it.

The Court: Be a little more explicit and refer to the particular thing.

Q. By Mr. Caughey: Referring to the drawing which is before you as No. 4, that is the drawing of the H.P.M. press, is it not? Is that correct?

A. That is correct; yes, sir.

Q. Now referring to the upper ram, there is no means showing, is there, on that drawing whereby that upper

(Testimony of W. L. Benson)

ram may be retracted after it is in pressing position and pressed a block?

A. I left the entire mechanism off.

Q. Then, in that respect you intended it to be schematic, is that correct?

A. Generally speaking, that is correct.

Mr. Caughey: That is all.

Redirect Examination [1768]

* * * * *

Q. By Mr. Foster: With regard to the two drawings, [1769] Plaintiffs' Exhibits 3 and 4, that you were asked about on your cross examination, did you make both of those drawings in a single day, Mr. Benson?

A. No; I did not.

Q. Did you work upon them continuously from the time you commenced them until you completed them?

A. No; definitely not.

Q. Would you tell the court how you spent the time in making these drawings?

A. Well, I had the plant to operate and I could not get a draftsman, so whenever I had a few minutes I drew a few lines. I think two or three weeks passed, probably, before they were completed.

Q. Do you have a drafting room at the plant at Niland that you used for making these drawings?

A. No. We have nothing but a noisy office that we can make sketches.

Q. In connection with the making of these drawings were you given any specific instructions by Mr. Polderman or anyone else as to the piping to include?

A. No.

(Testimony of W. L. Benson)

The Court: Make that question broader: As to what to include?

A. He wanted a picture of the two presses; he wanted to be able to look at it; and this is the Frick press and the other one is the H.P.M. press, and the rest is what I just put down, what I felt he wanted. [1770]

Q. By Mr. Foster: Had you, before you made these drawings, studied and read through the patent in suit?

A. No; I had not.

Q. Are you a graduate engineer?

A. No; I am not.

Q. Referring to the legend—if the court please, may I approach the stand?

The Court: Yes, sir.

Mr. Foster: On Plaintiffs' Exhibit 4, note 3 was the subject of some questions to this witness on cross examination, your Honor, the note reading "Open chamber while pressing," and that note was excluded from the exhibit when it was offered by plaintiffs. I wish to offer that note 4 upon Plaintiffs' Exhibit 4—note 3 on Plaintiffs' Exhibit 4 into evidence at this time.

The Court: It may be received.

[Note: Defendants' Exhibit TT will be found in the Book of Exhibits at page 1597.]

Mr. Foster: Likewise the note number 4 upon Plaintiffs' Exhibit 3, reading "Upper ram open during pressing period" as testified to by the witness, was excluded from the offer of Plaintiffs' Exhibit 3, and I wish to offer that into evidence at this time.

The Court: It may be received.

[Note: Defendants' Exhibit UU will be found in the Book of Exhibits at page 1328 and 1598.]

Q. By Mr. Foster: With respect to the operation of the H.P.M. press, as referred to in your cross examination, Mr. Benson, as I understand it, prior to the pressing period the lower platen is dropped and gas escapes from the chamber. [1771]

A. Prior to the pressing period, that is correct.

Q. And gas also escapes from the chamber prior to the pressing period through the vent to atmosphere?

A. That is correct.

Q. Is the gas which escapes from the lower platen in the H.P.M. press gas that is adjacent the lower portion of the chamber, do you know?

Mr. Caughey: That is objected to as a leading question. Let him tell where the gas is. This is their witness. No proper foundation is laid.

The Court: Before you leave it, I think these last two items admitted in evidence had better take separate numbers so as to indicate in the record when they were introduced. So give separate numbers to the exhibits introduced by the defendants.

Mr. Foster: The first one will be Defendants' Exhibit TT and the second UU.

The Court: That's right.

Q. By Mr. Foster: You have stated that you were employed at the plant near Niland in 1940. Can you tell when that employment commenced, approximately, Mr. Benson?

A. When I arrived in Niland, do you mean?

Q. At the plant, yes.

A. It was July, I believe; I am quite sure.

Q. 1940? A. 1940.

Mr. Foster: Nothing further on redirect. [1772]

Mr. Caughey: That is all.

(Short recess.)

The Court: You may proceed.

Mr. Miketta: May it please the court, shall we now take up the summary of defendants' requests for admissions?

The Court: Yes. That is the one filed May 18th?

Mr. Miketta: Filed August 17, 1942, your Honor, Defendants' Exhibit U.

The Court: But this summary was filed in the clerk's office on May 18, 1944?

Mr. Miketta: Yes, your Honor. It is my understanding that defendants' requests for admission 15 has been admitted conditionally. That reads as follows: "Liquid Carbonic Pacific Corporation, Ltd., was wholly owned by Liquid Carbonic Corporation during the years 1934, 1935, 1936, 1937, 1938, 1939, 1940 and 1941." Admission 15 reads: "Admitted subject to all pertinent objections to admissibility which may be interposed at the trial."

Mr. Caughey: We renew our objection. Standing alone it has no pertinency, and I believe counsel for the defendants have stated they are not in a position to connect either of the plaintiffs up with these corporations, in so far as the California operations are concerned. Otherwise, I see no pertinency at all. [1773]

* * * * *

The Court: Yes. It should be understood by all of you [1795] that the objection is as of the time it is ruled upon, with all the pleadings and all the evidence before the court. In other words, you do not date back to the various dates on which the requests were made. It is, again, the other side of the proposition. If what I say is true on one side, it is true on the other.

(Testimony of Charles L. Jones)

Mr. Miketta: That is correct, your Honor. But just to keep the record straight, though, certain of these admissions and requests were admitted, and not objected thereto.

The Court: That is correct.

Mr. Miketta: So that the only ones that are now subject or taken under submission are 15, 16, 17—

The Court: Suppose you give me a written record of them after the noon recess.

Mr. Miketta: —24, 55, and 59. There are only six of them. [1796]

* * * * *

CHARLES L. JONES,

recalled as a witness on behalf of plaintiffs, in rebuttal, having been previously duly sworn, was examined and testified as follows:

Direct Examination.

Q. By Mr. Caughey: Have you your copy of the prior art patents? A. I have.

Mr. Caughey: You had better get those before we start and the patent in suit. [1799]

Q. Referring to the patent in suit, have you a copy of it there? A. I have.

Q. And particularly to page 2, commencing at line 14. You were present in the courtroom, were you not, Dr. Jones, when Professor Clapp gave his testimony about the diaphragm valve which is referred to there?

A. Yes; I was. [1800]

* * * * *

(Testimony of Charles L. Jones)

Q. You have that patent before you and Figure 1?

A. I have.

Q. Would you explain the operation of a diaphragm valve?

Mr. Foster: The same objection, your Honor; it is indefinite unless the basis of the understanding is stated in the question; there is no foundation laid.

The Court: Well, no; I don't think that is true. I think that there is a distinction now between his testifying as a patent expert and his testifying as to the function of the diaphragm valve in this set-up for Figure 5, as indicated on Figure 1; and the question is, generally speaking, what is a diaphragm valve? He is a mechanic; he understands what a diaphragm valve is; and that is so far as the question goes.

Mr. Foster: My objection is this: That the basis of his understanding does not appear from the question, whether it is limited to Fig. 1 of the drawings or whether it includes the description of the patent which he so carefully avoided qualifying himself on before. If it is limited to the drawing—

The Court: I think the witness understands the question is general. From your experience with Fig. 5 and mechanics, what is the diaphragm valve?

A. A diaphragm valve is a general expression used to cover any valve whose action is actuated by means of a diaphragm, a diaphragm being a flexible membrane extending [1802] across the body of the valve.

In order to clear up a little confusion in respect to this particular type of diaphragm valve, though, the type used as a by-pass on an exhauster and which would nor-

(Testimony of Charles L. Jones)

mally be taken by an engineer to be used in that position is not of the differential pressure type; that is, there are three classes, general classes of these valves. One type opens and closes responsive only to pressure variations on the high-pressure side of the valve. They are called relief valves. A second classification responds to variations on both sides of the valve; and they are called differential pressure valves. And a third type responds only to fluctuations on the low-pressure side. They are called pressure-reducing valves.

The diaphragm valve in Fig. 1 of the patent and, in fact, as a general rule, diaphragm valves employed in the by-pass of a positive pressure blower are of the pressure-reducing type and not of the differential pressure type. So that, I can say that for such valves the pressure on the right side of the diaphragm valve, as we look at the diagram of Fig. 1, makes absolutely no difference and will not affect the operation of the valve. The pressure on the left side of the diaphragm valve makes no difference as the pressure rises, that is, there will be no flow from left to right no matter how high the pressure may rise on the left side of the valve. The valve opens when, and only when, the pressure on the left [1903] side of the valve falls below the critical value for which it is set.

* * * * *

The Court: Let me ask you this question: Suppose, now, that I said to you, as an engineer, that you were to set in the line a diaphragm valve in order to automatically maintain a pressure, a definite given pressure, on one side, a definite pressure condition between the

(Testimony of Charles L. Jones)

one side and the conduits on the other side; what type of valve, diaphragm valve, would you set?

A. I do not believe that I could solve that problem. That is too— .

Q. It would not be sufficiently definite for you to know what kind of a diaphragm valve to set, is that right?

A. No. On the contrary, I would say that that result could not be accomplished by a diaphragm valve of any type. [1804]. The diaphragm valve is severely limited in its function and it can do nothing in that circuit except to short-circuit the exhauster and virtually to cause it to cease to function when the suction of the side of the exhauster tends to go below the value for which it is set. In order to maintain a difference across the exhauster or know what the difference in pressure between the two lines would be, we would have to know the size of the exhauster, the nature of the drive, the volume and pressure of the gases being supplied to the suction, and the resistance to be met in the line beyond that point. In other words, we would have to know what is supplying that exhauster, what is the exhauster pumping against, and what is its size, its speed, and the characteristic of its drive. None of those variables effect the function of the diaphragm valve.

Q. Then, as I understand you, take this Fig. 1, you could not set a valve in that line at a position 84 which would automatically maintain a definite pressure in the line on the high-pressure side and the lines on the low-pressure side?

A. Only in the restricted sense that you would maintain a lower limiting pressure on the suction side. You could put a floor, so to speak, under the pressure in the

(Testimony of Charles L. Jones)

suction, but you would put no ceiling on it; there would be no effect on the upper limit.

Q. By that you mean there might be as high as 50 pounds [1805] on the suction side, and it would not make any difference, so far as the diaphragm valve is concerned?

A. No, the diaphragm valve would remain closed at any pressure above the pressure at which it is set.

Mr. Caughey: If your Honor please, in view of the objections made, I am going to qualify this witness as a patent expert, so there won't be any question as to Dr. Jones' qualifications.

Q. Are you familiar with patents? A. Yes.

Q. Have you taken out patents of your own?

A. I have.

Mr. Foster: This is objected to upon the ground that the witness, according to his prior testimony, was not a patent expert. As I understood it, those were the objections to our asking the questions.

Mr. Caughey: We did not say he was a patent expert. We merely put him on the prima facie case, and did not use him on the prima facie case as a patent expert. But that does not mean that we can't call him on rebuttal as a patent expert; show that he is an expert. They had a right to go forward and examine him.

The Court: I think that is true. They did not say he was a patent expert; simply said they did not qualify him as a patent expert. They can either qualify him as a patent expert now, or call somebody else in and qualify him [1806] as a patent expert. I think the objection will have to be overruled. I remember definitely what was said.

Q. By Mr. Caughey: You say you have taken out patents of your own? A. Yes.

(Testimony of Charles L. Jones)

Q. How many?

A. I don't know offhand. I should say about 15 or 16.

Q. What are they related to, Dr. Jones?

A. Principally for extinguishments, refractories, and carbon dioxide.

Q. When you say carbon dioxide, are you referring to liquid carbon dioxide, solid carbon dioxide, or what?

A. Primarily solid carbon dioxide.

Q. Did you state how many, approximately, you have taken out?

A. I said 15 or 16. I am not sure of that figure. I really don't know.

Q. Have you had occasion to read patent specifications, and to study the drawings of patents?

A. I have. I have never felt that I knew very much about claims, but I have read a great many patent specifications.

Q. Have you ever acted as an expert in a patent case?

A. Yes, I have.

Q. Would you state in what cases?

A. I was used in a part of a case only, in the case of Carbice Corporation vs. Dry Ice. I appeared again in the [1807] case of Dry Ice Corporation against, I think the name was the Dry Cold Corporation, or the J. S. Belt interests in Little Rock, in 1931. I believe that is where the District Court is. I am not too sure.

The Court: It sits there. A. Yes.

Mr. Caughey: I think it travels.

Q. Did you have occasion, in connection with the patents which you made application for yourself, to read specifications, and follow the proceedings through the Patent Office? A. Yes.

(Testimony of Charles L. Jones)

Q. And have you acted as a consultant in connection with patents and patent matters?

A. Yes, I have advised the plaintiff in the present case in connection with patent matters for the past six years.

Mr. Vaughey: Your Honor, I think that is sufficient to qualify this witness. If there is any objection, they can take him voir dire.

The Court: Have you any questions on voir dire?

Q. By Mr. Foster: Several of these patents, where an application was filed by you, and relating to solid carbon dioxide, are now owned by the plaintiffs, or one of them, that is true, isn't it?

A. That is correct.

Q. In fact, all of your patents which relate to solid carbon dioxide are owned by one or the other of the plaintiffs? [1808]

A. That is correct.

Q. In your advising plaintiff with respect to patent matters in the last several years have you advised them with respect to license contracts?

A. I have not.

Mr. Caughey: That is objected to as not proper examination. It does not go to his qualifications at all.

The Court: He answered he had not, so I guess it doesn't make much difference.

Mr. Foster: No other voir dire.

The Court: You may proceed.

Q. By Mr. Caughey: Referring again to the patent, and again to Fig. 1, and to the exhauster 81, which is shown therein, you also heard Dr. Clapp testify as to that exhauster, did you not, and to the operations of it?

A. I did. [1809]

Q. Calling your attention to the language appearing on page 2, lines 9 to 19 inclusive, are you familiar with that language, and have you read it?

A. Yes, I am.

(Testimony of Charles L. Jones)

Q. Have you read and studied this patent in suit?

A. Yes, I have.

Q. Including the specification and drawings?

A. Yes.

Q. From your experience as an engineer, and from your understanding from the reading of this patent, will you explain the operation of the exhauster 81?

A. The exhauster 81 functions quite differently according to the particular conditions under which the press in the system is used. [1810]

* * * * *

Q. Do the specification and drawings of this patent teach a snow ice process or a triple point?

A. A snow ice process. [1811]

* * * * *

Q. As described in the patent, what do you understand is the function of the exhauster 81, as indicated in the specification and in Figure 1—what the patent teaches?

A. The wording of the patent in reference to this exhauster is not very extensive. There is certainly nothing redundant in the description of how the exhauster operates. The specification, page 1, line 34, gives the key to it in stating that the exhauster 11, which is not the exhauster 81, is preferably of a motor-driven positive type. That undoubtedly conveyed to the mind of another expert in this case that that was a Roots positive type blower, which, I believe, would be the connotation to anyone else working in this art. So we presume that when the blower 81 is later described he is still talking about a rotary positive blower of the Roots type. [1812]

* * * * *

(Testimony of Charles L. Jones)

A. There is hardly any reason to read the wording again. The wording itself is sufficient. The patent speaks for itself.

Q. From your reading of the specification, how would you state the exhauster would work in Figure 1?

A. Your question now is how the exhauster actually operates?

Q. Yes.

A. And not as to what the specification discloses?

Q. How it would operate from a reading of the patent, as a patent expert.

Mr. Foster: That is compound again.

The Court: You have got two separate things.

A. I can't answer it.

The Court: Reading the specification, what would you, as a patent expert, say this specification taught as to the functioning of the exhauster 81; not from practical experience with some machine, but from the specifications? You are now a patent expert interpreting this instrumentality or device. If you can't do it, say so; if you can, tell us what words indicate it.

A. I can't without reading into the patent specification more than the language says, do any more than say that the passage has already been read a number of times in this court, and the patent speaks for itself.

Q. Were you familiar with exhausters of the type you [1813] describe at the time of the issuance of this patent, December 24, 1935? A. Yes, I was.

Q. Referring to the Roots blower, which you referred to, how would that operate?

Mr. Miketta: I object to that as being directed to the state of the art as of 1935. The patent application was filed in May of 1928.

(Testimony of Charles L. Jones)

The Court: Objection sustained.

Mr. Caughey: That may be so, your Honor, but this patent was not issued until 1935. I don't know how anybody could read the patent until after it was issued.

The Court: Was there any amendment to that clause from the date of the application to its final issuance? It would be presumed there was none, unless you show there was, and then we have got to trace back to the date of the application to determine what was in the art at that time.

Mr. Morris: I think there was no amendment with respect to that.

The Court: Was there any change in the Roots blower between 1928 and 1935, so far as you know?

A. The question is as to the blower, the physical equipment itself, put in the plant, if it was changed?

The Court: Yes.

A. No, the Roots blower was the same used in the plant from the time it was completed. [1814]

The Court: Then it is a moot question.

Mr. Caughey: I referred to that in the question purposely.

The Court: It does not make any difference. The same condition physically prevailed.

Q. By Mr. Caughey: As of 1928 you were familiar with the Roots blowers and their operation?

A. Yes.

The Court: And the same question as of 1935?

A. The same answer.

Q. By Mr. Caughey: Will you please describe the operation of it?

A. These blowers are normally sold for conditions—

(Testimony of Charles L. Jones)

The Court: Were, you mean?

A. Were normally sold, and are normally sold at the present time.

The Court: We are not talking about the present time. [1815]

* * * * *

Q. By Mr. Caughey: Do you have personal knowledge of the operation of these exhausters, Dr. Jones?

A. I do.

Q. You have actually operated them?

A. I have operated the blower which is the basis of the schematic representation 81, in the Long Island City plant of the General Carbonic Company, Sixth Street and Hudson River.

Q. When did you do that? A. In 1928.

Q. When you operated that blower would you tell just exactly how it operated, and what you did? [1816]

A. We had a press which was then newly installed, corresponding almost precisely to Figure 5 of the patent in suit. When this was installed I placed in the outlet line a throttle valve corresponding to the valve which I think we have been calling 80a.

Q. You are referring to Figure 1; is that correct?

A. I am referring to Figure 1.

Q. 80a in Figure 1?

A. Yes. We first operated this machine to make snow ice, and in making snow ice the valve corresponding to 80a was left wide open at all times, and was never even touched by the operator of the machine. Nozzles for introducing liquid carbon dioxide were attached to the press chamber, which in the patent is 100.

(Testimony of Charles L. Jones)

Q. Are you referring to Figure 5?

A. Figure 5 yes. And the liquefied carbon dioxide was sent to the chamber through these nozzles. It so happened, not through exact design, or through any calculations or knowledge of what the pressure would be, but merely through the fact of our having started with a certain size liquid nozzle, that the rate at which we deposited the snow in the chamber corresponded to a pressure at the inlet side of the rotary blower of about 35 pounds, and fluctuating, during the depositing of the block, from about 30 pounds to approximately 40 pounds. [1817]

During this period the blower, which was a belt-driven type, showed a definite increase in speed; that is, it was easily possible to hear the change in the action of the blower as the gas under pressure coming from the snow machine changed its function, or caused it to operate, not as a blower or exhauster, but as a throttle valve, a brake, holding back the exit of gas from the chamber, instead of increasing it.

At the end of the snow-forming period the liquid valve was turned off, stopping the supply of unsolidified gas to the blower. The blower then, in a very short period of time,—I don't know just how many seconds, but something under a minute—reduced the 35 pounds pressure in the line to atmospheric. I say atmospheric; it reduced it to a pressure too low to read on an ordinary gauge, and ran the needle approximately to zero. [1818]

* * * * *

A. I testified as to what they did, not as to what particularly my understanding was. I testified that I went

(Testimony of Charles L. Jones)

into a plant and ran this machine and it worked in a certain way.

The Court: Yes; as to what they did at that time.

A. Yes. I do not know that I would have been—I don't know how to state it—I do not know that I would have had any different conception, possibly, than what Professor Clapp expressed on the stand if it were not from the experience. I was testifying to experience rather than about a mental reaction and disclosure.

The Court: That was my understanding of his testimony. Your testimony was that the teachings in the patent were very meager and very sparse, and that you could not answer the questions that were asked from the specifications of the patent. Then you testified that, actually, you know what you did with a Roots blower, and that is what you have been testifying to since.

A. That is correct.

The Court: Now you may proceed.

Q. By Mr. Caughey: Continue your answer.

A. After the snow valve was shut off, in a short period, as I have already said, the exhauster drew the pressure down to atmospheric and the diaphragm valve then operated. I know that the diaphragm valve operated because it happened to be a noisy type and you are definitely aware when that valve [1821] operated it slapped; so that the diaphragm was definitely opening and bypassing the exhauster at about the same time that the gauge needle showed atmospheric pressure in the chamber.

We then proceeded to press our block of solid carbon dioxide and remove it. We, as I recall it, did not at that early date indulge in the double-pressing technique

(Testimony of Charles L. Jones)

at the bottom of the block in that particular press, although it had been used as a practice both before and after the time we made that particular block.

Q. By Mr. Caughey: Now, you were talking about in connection with the making of snow ice; was that your testimony? A. That is correct.

Q. Did you make any other kind of ice in that machine at that time, in the press?

A. Yes; we proceeded immediately after trying it on snow ice. I had had for some time a preference from an engineering point of view for the triple-point form of ice, primarily because it offers a better distribution; there is less tendency of the material to pile up in corners of the chamber. In common language, it has less tendency to form snowdrifts. I knew about this form of ice, both from general knowledge of the physics and chemistry of the material, and also from a prior patent application to Slate, which was then owned by our company and with which I was [1822] familiar. So, in effect, I undertook to operate Slate's process in Cole and McLaren's apparatus. I did this by taking the valve 80a, or corresponding to 80a, and since by that time I knew that the blower casing would stand 30 or 35 pounds pressure, and I did not know how much more pressure it would stand or whether it would stand any more pressure. I used the valve 80a to maintain the desired pressure of the 75 to 80 pounds in the press chamber, taking care not to let the Roots blower suction pressure go over the 35 pounds which I knew to be a safe pressure.

Q. By the Court: How did you accomplish that?

A. By throttling the valve 80a. I had a valve overhead with a chain wheel on the handle and I throttled

(Testimony of Charles L. Jones)

that to maintain 75 pounds pressure in the chamber, and interrupted the making of the cake two or three times by shutting off the liquid supply because the blower was not taking it away fast enough to maintain that low pressure.

Q. In other words, you did it manually?

A. Did it manually.

Q. By Mr. Caughey: As I understand it, that press had on it a diaphragm valve?

The Court: Just one minute.

Mr. Caughey: Pardon me.

The Court: I want the record to be clear on this. You were maintaining not more than 35 pounds pressure; you said, 30 or 35 pounds pressure in the diaphragm valve? [1823]

A. That is on the suction of the Roots blower and against the low-pressure side of the diaphragm valve; yes.

Q. You set it for that?

A. No. The diaphragm valve has no effect upon that pressure at all. The diaphragm valve is set only for the lower limiting pressure, so the diaphragm valve was set for atmospheric pressure, as closely as we could set it.

Q. That is on the low side?

A. On the low side. May I use the diagram to make that clearer?

Q. Yes. For the record, what is this diagram?

A. This diagram is a manufacturer's bulletin, which is a recent bulletin and merely illustrates a general type of equipment that has been available for many years. We did not use this particular regulator. This bulletin

(Testimony of Charles L. Jones)

happens to be a Pittsburgh Equitable Meter Company publication. But in this type of valve, as will be seen, there is a diaphragm which has a comparatively large area and which, on its under side, is in communication with the outlet of the valve, so that the outlet pressure is effective at all times against the lower side of the diaphragm. The inlet enters through a valve port, the seat of which is held—the valve is held in contact with the seat in a closed position by pressure against the lower side of the diaphragm. In other words, if it is set at atmospheric pressure or 14.7 pounds absolute, when that pressure or any higher pressure is effective on [1824] the outlet the valve will remain closed, and the higher that pressure goes, the more tightly the valve will close. So that we never at any time can get reverse flow, that is, we can get flow from the low-pressure outlet to what is normally the high-pressure inlet. However, what is normally our low-pressure outlet can go to a far higher pressure than our inlet. That is, in the drawing of the patent this valve is set so that the outlet position is in line with the gas direction shown by the arrows, the outlet to the left. It is then set for atmospheric on the lefthand side, so that it will not permit a pressure lower than atmospheric on the left, but it will remain closed at any pressure higher than atmosphere and permit no flow at any time to travel through the valve from left to right.

Q. By Mr. Caughey: As I understand your testimony, there is at no time any flow from left to right, is that correct? A. That is correct.

Q. And the only flow is from right to left?

A. That is correct.

(Testimony of Charles L. Jones)

Q. And that flow only occurs after the pressure at which the valve has been set has been overcome, isn't that correct?

A. That pressure is only reached in solid carbon dioxide practice after the solid has been formed, the liquid turned off, and the pressure in the chamber reduced to atmospheric pressure. There is never any flow through that valve at any other time. [1825]

Q. I believe you testified that there was a diaphragm valve and also a blower exhaustor on that press that you were operating at Long Island? A. There was.

Q. In 1928? A. There was.

Q. I show you a photograph—

The Court: When I said you set that diaphragm, you said no, that diaphragm valve, but you did set it, did you not, for—

A. Not to maintain 35 pounds pressure; no. We set that to maintain atmospheric pressure on the left side, and when we say we set it to maintain that, it does not do anything of the kind; it only puts a floor.

Q. It did not have any effect to maintain it. The only thing is that if you have these two things—they are not a very good illustration—if you have those two things contact so that there is absolute contact there, you can keep on pressing all you want to on this end and it does not make it any tighter?

A. That is right.

Q. That is all there is to it?

A. That is correct. The only pressure it maintains is the lower limit. It prevents the pressure of that line going below atmospheric, but it has absolutely no effect from atmospheric and above. [1826]

(Testimony of Charles L. Jones)

Q. That is why. I thought you said before in your testimony that you set that for 35. A. No.

Q. And I did not see how that could be done, because you can't tell what is going to be on the other side and it has got to be substantially—

A. I agree with Professor Clapp's testimony in that regard, that a diaphragm valve can have no function and no effect on the pressure on the exhaust or suction line above the gas holder pressure.

Q. That was the thing that was confusing me. I could not understand how it could have the slightest effect, because you kept on putting all the pressure on it you wanted, and it was doing exactly the same thing; it would be at atmospheric pressure.

A. And standing still except when taking gas at a lower limit than at which it was set; that is correct.

Q. By Mr. Caughey: But in so far as the exhauster was concerned, the fact there was 35 pounds in the diaphragm would have no effect on the exhauster, would it, the operation of the exhauster?

A. No; the exhauster during that part of the cycle operates as though the diaphragm is closed off or not there at all.

Q. By the Court: You could eliminate it at all; there is no by-passing at that time at all? [1827]

A. That is right.

Q. By Mr. Caughey: I believe, as you previously testified, the by-passing is only from the right to left, as shown in Figure 1?

A. Yes; and only after the system has been pumped down to atmospheric pressure.

(Testimony of Charles L. Jones)

Q. For any pressure, if there is a higher pressure in the line to the right, it could be set so that it could equalize that pressure on the line to the right, is that not so?

A. Any pressure for which it is set. I believe Professor Clapp said one pound, which is easily possible.

Q. I show you a photograph and ask you if you can identify the same? A. I can.

Q. What is it?

A. It is a photograph taken in the press room at the General Carbonic Company's Long Island City plant; and it shows both the vertical press of Fig. 5 and a partial view of the horizontal press of Fig. 2. It shows in the center the valve 80a with its regulating—its manipulating chain hanging down in front of the press.

Q. Is there any designation on that manipulating chain?

A. It is marked on this photograph with the letter C.

Mr. Foster: We wish to call the court's attention to the fact that we have not seen the photograph referred to by [1828] the witness until a moment ago.

Mr. Caughey: I believe that is correct, your Honor. I believe this was a photograph that was in evidence in some interference proceedings that we pulled out just so as to explain and tie up the testimony of this witness.

A. It shows the belt-driven blower marked B, and it shows the end of the horizontal machine, Fig. 2, at a position marked A. The corresponding throttle valve 80a appears at the upper righthand side of the picture.

Q. And that is the press that you have testified to you actually operated? A. It is.

Mr. Caughey: This photograph is offered into evidence as Plaintiffs' Exhibit next in order.

(Testimony of Charles L. Jones)

The Court: It may be received as illustrative of the witness' testimony.

Mr. Foster: It is objected to on this record, your Honor. No foundation laid as to time.

The Court: It does not make any difference. He said that is the machine he operated.

Mr. Caughey: I will ask him.

Q. You have previously testified you operated a machine in 1928. Is that the same machine?

A. This machine was set on the floor in that position, I believe, about the 1st of December, 1928. Then, in early January, the press was equipped for making the triple-point [1829] type of ice, and I am able to state that this photograph was taken sometime—oh, I think the first three months of 1929 is about as close as I would like to be sure of it.

Mr. Caughey: Plaintiffs' next exhibit. 23?

The Clerk: Plaintiffs' 23.

Q. By Mr. Caughey: Blowers of Roots type or ex-hausters that you have testified to, they were common in the art at that time, were they?

A. Yes; they were.

Q. Were you familiar with them? A. Yes.

Q. As an engineer? A. Yes.

Q. In this particular art? A. Yes.

Q. In pressing snow or triple point ice in a press are gases given off all during the time of pressing?

A. Yes; they are.

Q. And what would you say as to whether or not there would be any possibility of any air coming into the

(Testimony of Charles L. Jones)

chamber through a vent to atmosphere during the pressing period?

A. During the pressing period the air will not enter the chamber through a normally-sized vent to atmosphere. [1830]

* * * * *

Q. By Mr. Caughey: I believe you previously testified that you first began or were first connected with the Dry Ice Corporation in 1927, is that correct?

A. That is correct.

Q. What was your position at that time?

A. I was a consultant, consulting engineer.

Q. And did you have anything to do with the operation of the plant at Elizabeth?

A. Not during that period, no; I didn't.

Q. At any subsequent period?

A. In October, 1928, I took over the duties of chief engineer of Dry Ice Corporation, and at that time was made responsible for the operation at Elizabeth.

Q. Whom did you supersede in that position?

A. Mr. J. W. Martin, Jr.

Q. What kind of apparatus was being used to produce ice at that plant when you took over in October, 1928?

A. The snow tank method. [1831]

* * * * *

Q. Were there any changes made in those snow tanks, or were they taken out and replaced by any equipment while you were at Elizabeth?

Mr. Foster: Objected to as immaterial, 1928 or thereafter.

* * * * *

(Testimony of Charles L. Jones)

The Court: I think I will take it, subject to a motion [1832] to strike. I am a little in doubt about its materiality.

A. Yes; they were replaced with Cole and McLaren presses in the spring of 1929.

Q. By Mr. Caughey: How many Cole and McLaren presses?

Mr. Foster: Now, I object, your Honor, and move to strike the answer because of the use of the term "Cole and McLaren presses." It does not appear what they are and it is a conclusion of the witness.

Q. By the Court: Whenever you say "Cole and McLaren press" you mean what you have been describing as Fig. 5 here?

A. I mean the vertical press substantially the same as in Fig. 5.

The Court: Very well. With that explanation, the answer may stand.

A. We tried out a number of minor variations. In fact, for the first couple of years we tried to make it a point never to build two of them exactly alike, because we wanted to learn as much as we could about the material of construction and details of design.

Q. By Mr. Caughey: How many of these Cole and McLaren vertical presses did you put in in 1929?

A. That first one and then two additional ones, a total of three.

Q. Did you operate them in conjunction with the snow presses or were all the snow presses removed at that time?

A. No; the snow tanks were not immediately removed. [1833] There was quite a period of time when they overlapped, and for some time we had only one vertical press, and then later, when all three went in, it took some weeks

(Testimony of Charles L. Jones)

to get the mechanical installation completed and get them all operating satisfactorily, and during that time we used the snow tank. [1834]

* * * * *

Q. Dr. Jones, will you refer to the book of patents, I believe it is Exhibit EE, and I will call your attention to EE-1, which is the patent to Cartier. Without referring to any changes which Professor Clapp may have stated were necessary in the cross-examination, to change that particular apparatus to function as an apparatus for making CO₂ ice, would you indicate any other changes that you believe were necessary, and the reason why it would not so function?

The Court: Wait a minute. That he can't do.

Mr. Caughey: Any other changes.

The Court: Any change.

Mr. Caughey: Any change.

The Court: Any change; not any other change.

A. The device would require an inlet; it would require the reconstruction and closing in of the outlet in so far as the open oil ducts at the upper edges of the press chamber are concerned, which are shown in the patent, which waste to the atmosphere all of the unsolidified gas, and in my opinion it would require the elimination and reconstruction of the perforated, irregularly surfaced upper and lower pressing surfaces, because, in the first place, during pressing the ice tends to extrude through these openings, and, in the [1839] second place, when the block is completed the material forced into the apertures in these screens would be firmly attached to the block, and would require the operator to pry the block loose from the portions of solids extending into this irregular piston surface.

(Testimony of Charles L. Jones)

Q. Refer to Sailor patent, EE-2. Would you answer the same question as to that?

A. The Sailor patent shows no closure head. In other words, as to one end, it does not make any difference which end, corresponding to the closure end in Cole and McLaren, the piston shown would not operate as a closure, and as to the other end the chamber would also require to be closed, because otherwise the gas outlet might be exposed in such a way that the compressor system might draw air through the gas outlet.

Q. Now, refer to the Holden patent, EE-3. Will you please cover that patent as to the same question?

A. This patent shows a device which is, in effect, a separate snow making device or snow tank, dropping its product into the second apparatus, which is a press. The snow tank is defective in that it is without a top, and the patent shows a scraper member or inverted U-shaped yoke, driven by a vertical shaft, this yoke protruding through what would normally be the flat top of the chamber, and the patentee shows it as an open can, or ice-making vessel. This would require to be enclosed; and no outlet for the [1840] carbon dioxide is shown.

Q. Referring to Drummond, EE-4, would you please state any changes which, in your opinion, are necessary in that patent, in addition to those which Professor Clapp mentioned?

The Court: Not in addition.

Mr. Caughey: May your Honor please, what I am endeavoring to do is that Professor Clapp stated that the changes made were necessary. I am not going over that ground even.

The Court: Make that clear, because there was confusion in your first question.

(Testimony of Charles L. Jones)

Mr. Caughey: I thought I made that clear.

The Court: You said disregarding Professor Clapp, what other changes were to be made. You couldn't disregard it.

Mr. Caughey: No. I am sorry.

The Court: Ask him this question first: In these various patents do you agree that there would be required those changes indicated by Professor Clapp as to all the patents,—at least that many?

A. Yes, in so far as I am able to recall Professor Clapp's testimony, I believe that I agree with all of his changes.

The Court: Now, the question which you answered as to Cartier, No. 1, and Sailor, No. 2, and Drummond, No. 3, were additions to those indicated by Professor Clapp?

A. They are. There may be some duplications, due to [1841] my own confusion of the question.

The Court: Yes. And the same question as to Drummond, No. 4.

A. Drummond shows a head or piston E. This is not a closure head, and as Drummond shows it, would not so operate, so that it would be necessary either to make a closure head out of the element, or to add some other element to perform the function of closing the top of the chamber. The perforations in A and E would make it difficult to remove the block for the same reasons I stated in connection with Cartier. The ice would extrude into those perforations, and tend to attach the product to the platens. Also, the perforations are shown in this patent as of rather large size, and it might even be on pressing all of the product would extrude through the holes in the piston, and it would end up with no commer-

(Testimony of Charles L. Jones)

cial block at all, but, rather, a mass of extruded cylindrical chips.

Q. Would you refer to Gaylord, EE-6, and as to that patent answer the same question?

A. Gaylord again shows a machine which is an extrusion machine; that is, in the material with which he is working, it is desirable to extrude the particles of amber through the orifice from one chamber into another in order to mix and rework the resin so as to make it more uniform. If this device were used with solid carbon dioxide it is very doubtful whether a block would result, because the material [1842] extruded through the orifice would form a mass of broken cylindrical chips of solid, which would be very difficult to re-weld into a uniform block. Also, Gaylord, discloses the cracking of the front block of his mold as a means of venting gases, and unfortunately he can do this only at a time when the pressure is not being exerted on the molds. In other words, it would be impossible to use this scheme as a vent for the gas at the same time while a block was being pressed against the head.

Q. Will you refer to Holden, EE-7, and I believe in this you can also direct your answer to the other Holden patent, which is 1,054,772, which is EE-10, if possible to do so, and dispose of those in one answer?

A. I would remove the perforated cylinders shown in both of these patents, and replace them with a solid wall cylinder, because the perforated cylinder, while it might not absolutely prevent the pressing of solid CO₂ in the device greatly increases the mold wall friction, and exerts very considerable of a retarding effect during the compression of the block.

(Testimony of Charles L. Jones)

Further, these complicated passages would tend to become clogged with carbon dioxide snow, and it is extremely doubtful and questionable as to just how they would function, and what path the outlet gases would take after they became clogged. The bottom inlet shown in these patents is also, in my opinion, entirely impracticable for use with the [1843] triple point type of solid operation, because such a bottom inlet is necessarily flooded with the liquid carbon dioxide when the press chamber is filled, and when it is boiled down the bottom inlet connection remains filled and plugged with solid carbon dioxide; hence, it is very doubtful whether you would make a second block in the press, even though you could make a first block.

Q. Would you please refer to Flemming, EE-8, and answer the same question, as to this patent?

A. Flemming shows a carbon dioxide pencil making device, which is hand operated, and requires for its successful operation only a degree of compressing, which is easily obtained by hand operation. This degree of compression produces a product of medium density, which is dense enough for use in medicine, for which the carbon dioxide pencils were intended, but is far below present commercial densities of solid carbon dioxide sold in the trade.

Mr. Foster: If the court please, may I ask the court to instruct the witness to answer the question which I understand to be what changes, in addition to those suggested by Professor Clapp are necessary to produce solid carbon dioxide in the apparatus illustrated and described in this patent.

The Court: Yes, you are so instructed.

(Testimony of Charles L. Jones)

Mr. Caughey: Of course, that also includes the pressing of the carbon dioxide, when there is a pressing [1844] means at all indicated in the patent.

The Court: Anything further?

Mr. Caughey: Anything further in this patent?

The Court: Flemming.

Mr. Caughey: Yes, the Flemming patent.

A. I am afraid I am confused. I don't believe I can answer any of these questions if that is the basis, because if you neglect whether the solid carbon dioxide is of commercial quality, or not, you can make solid carbon dioxide in any of these prior art devices; that is, you can expand some snow in any of these chambers.

Mr. Caughey: No—

Mr. Foster: I think that should be the question, because the patent in suit is not concerned with any degree of compression or density of the blocks. It is not limited to the production of blocks which are commercial products today, in 1944. I think the last statement of the witness admits the applicability of all the prior art for all the purposes of this patent.

The Court: That is a matter of interpretation, which I will have to ultimately come to. It may be that this testimony won't be of any interest to me. I don't say that it will not or will. Let us have it, and then we have it in the record. Were there any other changes, Dr. Jones? This was designed for local anesthesia, was it not?

A. Yes. I would like to make another comment about [1845] this apparatus, but I don't know how to line it up with the question, because I don't believe the apparatus can be changed to correct the defect which requires the

(Testimony of Charles L. Jones)

change. In other words, I can't suggest a change which would make it function.

* * * * *

The Court: It may be stricken. In your judgment, the reason you could not use this for making commercial CO₂ ice is what?

A. First, too low a density, and the necessity for better compressing means. Second, the fact that there is no practical removable closure shown which would work in commercial practice. It is necessary to unscrew these devices from the cylinder, in order to remove a small pellet each time the pellet is made; and, third, the fact that devices of this class are serious gas wasters. By that I mean, in molding an article of the size and type disclosed in the patent, there is not sufficient area for providing an efficient filter to cover the surface of the pencil, and it is, therefore, necessary to use a screen, [1846] cloth, or other filtering means, which is open enough to permit the rapid accumulation of a charge of solid, and when that is done considerable amounts of snow are wasted, so it is found to be more economical to go back to the original method and employ a cloth or chamois bag.

Mr. Foster: It doesn't appear to me, from the last answer of the witness, that he is making it upon the disclosure of this patent. I understood the question was directed to its disclosure. For that reason I move to strike the last answer.

Mr. Caughey: I think he has a right to say in his opinion whether it is not a good reference, and why it is not a good reference, if it is a gas waster, as shown by the drawings of the patent. The witness has a right to comment as to that.

(Testimony of Charles L. Jones)

The Court: I think in this way it is proper; as a laboratory experiment it works very well for the making of a small pencil, to be used for local anesthesia; it works very well, but when you expand the instrumentality sufficiently to make a commercial product, you have got to guard against wastage of gas, in order to make it practical; that is substantially correct?

A. That is correct.

The Court: I think in that way it is legitimate. Motion denied.

Q. By Mr. Caughey: Would you refer to Stastney [1847] patent, EE-12,—no, before that, will you refer to Julius, which is EE-9. Would the same criticism you have of Flemming apply also to Julius?

A. Yes, the same answer with respect to Julius as with respect to Flemming. [1848]

Q. Referring to Stastney, EE-12, would you answer the question as to that patent? I understand, Dr. Jones, that that is the patent which Professor Clapp testified that he used in connection with the construction of Defendants' Exhibit II? A. Yes.

Q. You witnessed the demonstration of the making of dry ice, both times in the courtroom, did you not, which was made by defendant?

A. I did. As to this device—

Q. You are referring to Exhibit II?

A. I am referring to the device, Exhibit II, and to the patent itself. The principal structural change which I observe there is a fundamental alteration in the character and function of the rings. Stastney shows a square soap molding device, which in the absence of any such article as a square metal ring would have to represent

(Testimony of Charles L. Jones)

some form of packing, and Stastney so describes the rings in the specification of his patent, as packing rings.

In my opinion the problem of getting any type of packing or ring to operate commercially over a period of time without lubrication, in a cylinder of this type, would be rather extreme, and I know of no satisfactory way of lubricating. However, there is a considerable difference between a groove stuffed and maintained under such pressure with a soft packing material, subject to freezing and sticking on the [1849] walls of the chamber, and a round cast iron piston ring which is readily available, and has many mechanical merits which are not inherent in packing.

I don't have in mind any other structural changes in addition to those mentioned by Professor Clapp that would need to be made in the device shown in the patent, if it is sufficient to merely make any kind of solid carbon dioxide in the device. However, I do not believe that it can be operated at all to produce solid carbon dioxide of commercial density, and I believe the defendants have proven that point by their demonstration.

Q. Will you explain why you believe they have proven it?

A. The position of the vent to air in the top center of the compartment makes it completely inoperative as a vent to air when commercial density is reached. If we deposit a charge of solid CO_2 in the chamber, and then apply pressure under the piston to compress the cake we are pressing to a solid block directly up against the top plate of the machine, so that as long as the product immediately adjacent the vent pipe is porous, and will permit the passage of gas through the porous product, the vent continues to function satisfactorily to carry away the gases imprisoned in the block, and will function as a vent

(Testimony of Charles L. Jones)

satisfactorily up to that point. Then when we approach a condition where the dense block is being produced, and the porosity is being reduced, we have, in effect, a valve with a solid carbon dioxide seat, and that [1850] valve is being seated by the full pressure of the press. The greater our effort to produce a dense product, the more tightly we seal our vent to the atmosphere, and prevent its operation.

This was evident in the defendants' use of the device the first time defendants used it. A block was formed, gas pressure was put on the bottom of the piston, the block sealed the outlet, resulting in a liquefaction from the high pressure compartment, carbon dioxide coming in at the bottom of the cylinder, leaking around the piston where there were gases imprisoned in the block, until the pressures in the pores of the block itself reached a value above the triple point of 60 pounds. When that is reached the block is liquefied and it melts, and that meltage can only escape by melting or eroding, holding it open until it finds an escape out the outlet.

This actually happened in the first demonstration, as was shown by the violent fluctuation of the gauge, eventually breaking it, and the irregular, sputtering discharge of gas, with snow coming out of the exhaust showing. During the pressing period there was in the chamber liquid by the liquefaction of the product already made. When the chamber was opened to remove the product most of the product had disappeared by melting, so only a small piece was left to take out.

In the second demonstration the device was operated in a [1851] much different fashion. The gas pressure applied below the piston was applied only up to a value and for a period of time which was not sufficient to seal off

(Testimony of Charles L. Jones)

the vent to atmosphere, which still left the top of the block sufficiently porous to act as a vent. The block actually made was soft enough in the upper portion to be flaked off by very small force, so in the second trial the vent to atmosphere really worked as a vent to atmosphere, and, in fact, the device was demonstrated that it could very easily make a presentable looking pellet of solid carbon dioxide in the machine, with only one condition, that the operation must be stopped before it reaches a density at which it prevents the escape of gas through the vent.

Q. What would be your opinion as to whether or not continued blocks of ice could be made with that machine, Exhibit II?

A. If the plunger were mechanically actuated, and the closure head mechanically actuated, and the position of the vent to atmosphere either changed, or the gas vented through a normal leakage, in my opinion we would have not the Stastney device, but the Frick press, and I believe it is operative, so long as the features of the Stastney patent are retained. However, I do not believe it could be designed to operate continuously making 10 x 10 x 10-inch blocks of solid CO₂ of commercial density.

Q. I call your attention to the Slate patent, EE-15, [1852] 1,546,681.

A. In effect this patent discloses a rather specialized form of snow tank.

Mr. Foster: Is the question the same for each of these patents, may I ask the court?

The Court: I think so.

Mr. Foster: Then the request calls for the conclusion of the witness.

(Testimony of Charles L. Jones)

The Court: Yes. Just tell us the changes you would make in addition to those indicated by Professor Clapp.

Q. By Mr. Caughey: I believe Professor Clapp covered the disclosure. If you have any differences as to the disclosure, over and above what Professor Clapp has said, I wish you would comment on them; otherwise, confine it to any changes.

A. I would make no changes in the device. I think it is a good disclosure of the method for the making of triple point solid CO_2 , which may in a later step, as the inventor states in his specification, be then compressed by any suitable apparatus into dense cakes of any convenient size to fit the requirements of the trade. Page 1, lines 104-109.

Q. Would you refer to the Kochenderfer patent, which is EE-17?

A. Yes, I would make the same change in this as in Cartier and the Drummond devices; that is, remove the perforated piston heads, which will tend to cause the solid [1853] CO_2 to extrude through them, and the finished product to be attached to the plunger, and replace those elements with the ordinary type of solid compression members.

* * * * *

Q. By Mr. Caughey: * * * Referring to the chambers, I believe they are referred to as 41, in the drawing of that patent—there is only one sheet of drawings—will you state, was it the intention of the patentee, from the disclosure, to entirely fill that chamber with liquid CO_2 ? [1854]

A. Yes, it was his intention—

Mr. Miketta: I object to that as calling for the intention of the patentee. The document speaks for itself.

Mr. Caughey: I changed it.

(Testimony of Charles L. Jones)

The Court: He changed it to disclosure. Where is it so stated?

Q. By Mr. Caughey: Will you point out where it so states in the patent? A. Page 1, line 62:

"I find that when frozen under a maintained, follow-up liquid pressure of, say, 150 lbs. to the square inch, the ice will have a specific gravity practically the same as that of water, whereas the same method with the pressure kept up to 850 lbs. to the square inch will give a density of 86 lbs. to the cubic foot and with sufficient pressure, say, somewhere between 1500 and 2500 lbs. per square inch, the density of the ice can be carried up to 95 lbs. or even 100 lbs., or more per cubic foot."

The statement is clear that a maintained follow-up liquid pressure is to be maintained on the material in the chambers 41, and this is further confirmed by the patentee, including a liquid pump 60 in his device.

Q. Then, when the liquid freezes into a solid, what means is used?

A. The liquid is frozen by an external refrigerant conducting heat through the walls of the vessel. [1855]

* * * * *

Q. By Mr. Caughey: If this chamber 41 was 10 x 10 x 20 inches, and was filled with liquid CO₂, would you please state in your opinion how long it would take to freeze that by external refrigerant, from your knowledge as an engineer, and experience in this art?

Mr. Foster: Same objection, plus the lack of condition of the refrigerant and character of the block.

Q. By Mr. Caughey: And with the refrigerants which are referred to in this patent, which the patentee uses?

(Testimony of Charles L. Jones)

The Court: Taking the same arrangement of the apparatus, the same refrigerating process, changing only the size of the chambers 41, could the size of those chambers be increased and still the apparatus function?

A. Yes.

Q. As you increase the size you increase the time [1856] necessary for the complete freezing of the liquid CO₂, do you not?

A. Yes.

Q. Is there any formula by which you determine the ratio of increase to the increase of the area or volume of the chamber?

A. There are some formulae, but I couldn't accurately apply them to this material. It has to be sub-cooled about 40 degrees Fahrenheit below its freezing point, in order to get it out of the chamber at all. This condition does not obtain in the analogous water ice art, on which the formulae are based, and the determinations are not good enough to state with accuracy exactly how many minutes it would take to freeze a 10-inch cube in this device. However, I base my thought on this patent on Professor Clapp's testimony, that it would be possible to make a 10 x 10-inch cake in this device, and get it out without difficulty, and I believe he is right. I believe it can be so made, but that it would be a very slow process to do so, and that since it is a slow process, the hydraulic piston which the inventor suggests, not to supplement his follow-up liquid pressure, but as a substitute for it, would have to be an extremely tight piston.

In other words, to take the inventor's own description in the specification, that piston would have to be tight enough to allow pressure of 1500 to 2500 pounds per square inch on the carbon dioxide, a pressure for a period

(Testimony of Charles L. Jones)

of some [1857] 20 to 24 hours, without leaking, which is a very tight piston, indeed; and, in fact, probably so tight as to make it impossible to ever use the inventor's own suggestion in connection with his own process. I don't know how anybody would construct such a piston.

(Whereupon an adjournment was taken until 10:00 o'clock a. m. the following day, Thursday, June 1, 1944.)
[1858]

* * * * *

Q. By Mr. Caughey: Calling your attention to the Voightlander, which is EE-22, and to the perforations which appear on the piston heads of the device shown in the drawings of the patent, would you please state what changes, if any, in your opinion should be made if this machine was to be changed or converted so it would be capable of making CO₂ solid and pressing the same in the chamber?

A. Yes. I would discard both the upper and lower plungers shown and replace them with plungers of solid construction, because the solid carbon dioxide would extrude through the openings shown—and the openings 20 in Fig. 2, from Professor Clapp's estimate of the size of this device, indicate holes approximately a quarter-inch in diameter, which would certainly cause the product to seize to the platen. [1860]

* * * * *

Q. By Mr. Caughey: You were present during the testimony of Mr. Hood, were you not? ' A. I was.

Q. You heard his reference to a machine that was put in the Elizabeth plant sometime in the fall of 1928 or early 1929? A. Yes, I did.

(Testimony of Charles L. Jones)

Q. Was that a machine that was different than a snow machine?

A. Different from a snow machine?

Q. Yes.

A. It was a snow machine. It was different from a snow tank.

Q. Was it different than the Martin snow tank?

A. Entirely different.

Q. In order to clear up the record, will you please briefly describe that machine; its construction? [1865]

A. I would like to use the Martin patent 1,887,692, and Martin patent 1,659,435, in describing this machine.

The Court: Those are Nos. 24 and 21.

Mr. Caughey: Yes, for the record, they are EE-21 and EE-24.

A. This machine was designed and constructed by Mr. W. H. Fitzpatrick, and designs were drawn under the supervision of Mr. W. L. Hood and Mr. J. W. Martin.

The Court: What machine are you talking about; and were you there while they were being designed and built?

A. Yes, I was connected for a year in a consulting capacity, and during that time on several occasions was called to the drafting board and consulted with Mr. Martin, Mr. Hood, and Mr. Fitzpatrick about the design of the machine, prior to its building.

The Court: Then you don't know that it was designed and built by Mr. Fitzpatrick? You saw three men working on it?

A. That is correct. I am not trying to fix the authorship of the machine as to any one of those people. The entire conception may have been Mr. Martin's; I don't know.

(Testimony of Charles L. Jones)

The Court: Just stick to the question. The question is not who designed it or who built it, but it is just to describe the machine itself, and the only purpose for which you may use these drawings or these patents at this time is to help in your description, as you would any other drawing.

A. The machine was a press of the horizontal type. [1866] It was fully enclosed from the atmosphere, and it was made up of three distinct parts or elements. Uppermost in the structure there was an inclined cylindrical member or tank, approximately the same in size as the snow tank which was standard equipment. In this tank was a rotating shaft carrying rabble arms, which were adapted to break up the snow, or cause it to be conveyed down the inclined cylinder and dropped out at its lower end.

This cylinder corresponded in position to the chamber shown with the wall 10, in patent 1,659,435. The snow falling out the lower end of this cylinder dropped into a tamping compartment corresponding to the tamping compartment shown in patent 1,887,692, except that the tamper employed with a single cast steel tamper driven by an external crank shaft, and a complicated spring mechanism, so that it would permit the tamping of the snow and be cushioned on each blow by the springs, and at the same time was capable of riding to various heights in the chamber, according to the amount of snow which would be in the chamber.

The tamper tamped the snow in a space directly in the pressing chamber, and directly above it. The press consisted of two horizontally movable pistons, both, however, independent from a closure head, which do not appear in either of these patents. These platens were so disposed

(Testimony of Charles L. Jones)

that a charge of tamped snow could be confined on both sides of the chamber and moved laterally without compression to another point in [1867] the bore of the press, and then, after so moving, pressed from both ends in this bore, and then by a separately actuated closure head the chamber could be opened and the block withdrawn.

Those were the essential elements of the machine.

Q. And was that machine installed in the Elizabeth plant? A. It was.

Q. At about what time, 'as nearly as you can fix it?

A. May I use notes only for the purpose of refreshing my memory as to those dates?

The Court: No.

Mr. Caughey: No.

The Court: Not unless they were notes made back at the time.

The Witness: They were.

Q. These are notes that you made in 1928?

A. In 1928; yes.

The Court: You may submit them to the counsel for examination, if they wish to.

The Witness: To save time, may I say it is rather a lengthy exposition here of some experiments with this press, which is most of it only a waste of time here, except in so far as the date and a brief summary appearing on the last page are concerned.

Mr. Foster: May I, your Honor, ask the witness some questions about the documents on voir dire? [1868]

The Court: Surely.

Mr. Caughey: Yes.

(Testimony of Charles L. Jones)

Q. By Mr. Foster: These typed documents which are dated December 10, 1928, two of them, one consisting of two pages and one of four, were they typed by you?

A. Yes; they were.

Q. And the two-page document of December 10, 1928, was that typed by you? A. Yes; that is correct.

Q. And when with respect to the dates they bear—on those dates? A. On the dates.

Q. And the pencil notation bearing the note "2-2-29," is that all in your hand? A. That is all in my hand.

Q. When did you prepare that?

A. On that date.

Q. And where have they been since that date?

A. They have been in my possession.

Q. These documents which you have produced describe a machine to which you have made reference in your testimony?

A. No. The notes contain no description of the machine, and merely contain on the first page an identification as to what machine the experiments were run in, and on the last page, a summary showing what results were obtained up to that time with the machine. There is no description of the [1869] machine whatsoever.

Q. And there is no reference on the penciled sheet of 2-2-29 to any particular machine, is there?

A. Vertical machine, which had definite reference to Fig. 5, Cole and McLaren machine.

Q. And there is no reference to any particular machine on that document dated December 10, '28, is there?

A. Only the statement "small open presses" which refers to the ordinary type small open press used in the snow tank practice and which has been described.

(Testimony of Charles L. Jones)

Mr. Foster: These documents do not seem to relate, to me, to the machine concerning which the witness has testified and which he wished to testify as to dates on.

Mr. Caughey: I think I may clear that up, your Honor.

Q. Do those documents which you have produced, which are dated December 10th, 1928, and December 8th, 1928, relate to the machine concerning which you just testified? A. Yes; they do. [1870]

* * * * *

Mr. Caughey: At this time I will mark the document dated December 8, 1928, for identification as Plaintiffs' Exhibit—

The Clerk: 24.

Mr. Caughey: —24; and the document dated December 10, 1928, as Plaintiffs' Exhibit 25; and the document dated "2-2-29," as Plaintiffs' Exhibit 26.

I believe that the question was: "When was this machine installed?" Can you fix the date when it was installed?

A. This machine was installed on or about November 1st, 1928.

Q. And was it under your supervision after it was installed? A. Yes; it was.

Q. What did you do, if anything, towards endeavoring to make CO₂ in this machine?

Mr. Foster: That is objected to as immaterial. This is long after the asserted date of invention of the patent in suit and it is after the filing date of the application for the patent in suit.

The Court: Did either Mr. Hood or Mr. Martin testify anything to these operations in this period?

(Testimony of Charles L. Jones)

Mr. Caughey: No; they did not, your Honor, except it was [1871] testified—there was testimony as to the Martin patent that is in evidence, which was a somewhat similar machine—the Martin patent 1,887', which is EE-24.

The Court: Of course, it is just "somewhat similar," and it seems to me that we are going into a lot of collateral matters, a different machine and a different time, and it does not seem to me that it would be of any benefit to us.

* * * * *

The Court: You may do it briefly, subject to a motion to strike. [1872]

* * * * *

Q. By Mr. Caughey: How long did that machine operate, to your knowledge?

* * * * *

A. We used the machine for about two months.

Q. By Mr. Caughey: Was it used after that time?

A. No.

Q. While you were at Elizabeth? A. No.

Q. What success did you have in operating it?

A. We were unsuccessful in operating it to produce a commercial product. Our best continuous run, we made 29 blocks, of which 20 came out of the machine in one piece; and [1874] in order to do this we had to drop the density of the product to 35 to 37 pounds per cubic foot.

Q. Was that machine still installed in the Elizabeth plant after you installed the Cole and McLaren vertical machines of Fig. 5 in the plant? A. Yes.

Q. Dr. Jones, what knowledge was available to one skilled in the art to know what pressures to use to produce

(Testimony of Charles L. Jones)

the product of carbon dioxide snow in the machine of the patent in suit?

Mr. Foster: Objected to as no foundation laid, unless it is restricted to the prior art in the Exhibit EE.

Mr. Caughey: Oh, I don't think so, your Honor. A man skilled in the art is presumed to have a knowledge, whether it is prior art or where it is. It is the sum total of the knowledge of the prior art and it is what there was available to him.

The Court: Read the question, please.

(Question read by the reporter.)

Q. By Mr. Caughey (continuing): And as of the date of the issuance of the patent in suit—I mean the date of the filing of the application for the patent in suit, which was—

A. Well, the—

Q. Just a second. —May 22nd, 1928?

The Court: Objection will be overruled.

A. The triple point of carbon dioxide was well known. [1875] It appeared in standard chemical reference works and even in elementary books on physics and chemistry. The making—

The Court: Now, you are not answering the question. The triple point is the combination of the gas, the liquid, and the solid, is it not?

A. That is correct.

Q. He is asking you about the pressures. The pressure at 60.4 or thereabouts was known that it was the pressure, wasn't it?

A. Yes.

The Court: Now, stick right to the question and we will get along. You experts get to wandering around and take a lot of time.

A. The patent to Slate, 1,546,681, was available.

The Court: That is our EE-15?

A. Yes.

(Testimony of Charles L. Jones)

The Court: Just for the record.

A. And clearly stated that solid carbon dioxide could be made in the chamber of the invention by permitting a pressure to exist sufficient to insure liquid in the chamber, and then evaporating that liquid to produce a mass of solidified carbon dioxide, and then as soon as the gauge registers atmospheric pressure, the patent informs us that the solidification is complete and the product may be pressed. From this, one skilled in the art would have known that the maximum pressure that he might need to solidify carbon [1876] dioxide was above 60.4 pounds gauge, and he could select a suitable margin above that pressure for his operation.

Q. By Mr. Caughey: Would a man skilled in the art as of that date have had to determine the thicknesses of the walls of the chamber to have sustained such pressures?

A. No.

Q. Why?

A. Knowing that he wished to operate the machine at or above the triple point pressure, he would go to a press manufacturer and specify the working pressure for which the equipment was to be constructed.

Q. Would a man skilled in the art as of that date had to have determined the size of the chamber which was to be used?

A. No. The preference of the trade for a 10-inch cubical standard commercial block had already been established, and he would make his press chamber 10 x 10 inches or some multiple thereof.

Q. That knowledge was available in the art at that time, is that correct?

A. It was well established.

(Testimony of Charles L. Jones)

Q. Would it have been necessary for a man skilled in the art as of that date to have determined what type of nozzle he would use in the inlet, liquid inlet, into [1877] the chamber?

A. He would not have to determine it. Those skilled in the art at that time would be mainly people engaged in the liquefied carbon dioxide business, and the use of nozzles to control the discharge of CO_2 was well known, both in the fire extinguisher art and in the operation of carbon dioxide plants at that time.

Q. Were there various types of nozzles on the market which were available at that time to one skilled in the art?

A. For extinguishers manufacturers sold such nozzles, and offered them, but it was much commoner to take a readily available cylinder cap and drill a hole in it.

Q. Would it be necessary for a man skilled in the art, as of this date, to determine the volume of gas that would be generated when the liquid carbon dioxide was introduced into the chamber?

A. Yes, it would be necessary for him to determine that.

Q. With the knowledge which was available to a man skilled in the art, as of that date, would he have been able to do so? A. Yes.

Q. Will you please give your reasons for your answer?

A. I would say there are two kinds of those skilled in the art : There were those who had been operating, or were familiar with the snow tank and previous methods. They, of course, knew what yields were to be expected,

(Testimony of Charles L. Jones)

and what recompressor capacities were known, from their experi- [1878] ence. Then there were those who were skilled in the liquid carbon dioxide art, who had never made solids. For them it would be necessary to refer to handbooks or to chemical literature, in order to determine the yield of solid carbon dioxide from the temperature and quantity of liquid carbon dioxide which they had available for solidification.

The Court: All those things were matters of almost common knowledge in the art, weren't they? They had gotten down to such a point that they had it timed; they did not have to measure it by volume, or by weight. They knew that through a pipe of a certain diameter a certain amount of liquid CO₂ was going to come at a certain pressure; they could tell that; it was almost automatic; and it wouldn't make much difference whether were making triple point or snow; they had to put in a certain amount of liquid, a certain amount of gas, and get so much solid? A. That is correct.

Q. If he put in too much liquid, it would either gum up the works or the gas was going to escape in the air, and he was going to lose it? A. That is correct.

Q. By Mr. Caughey: What knowledge was available to a man skilled in the art at that time, whereby he could determine the relative size of the inlets and outlets in the chamber? [1879]

The Court: By relative, you mean relative to the size of the chamber and the product desired?

Mr. Caughey: That is correct.

A. As we have already stated, he would select the size of the nozzle, based on the amount of liquid that he

(Testimony of Charles L. Jones)

had available to solidify, and the known characteristics of his solidifying apparatus. As to the size of the outlet, the suction of his recompressor would be a standard pipe size, and one skilled in the art would run that pipe line from the recompressor suction back to the press, either with the same sized pipe, or with any sized pipe which would not give him excessive resistance in the line.

Q. What information or knowledge was available to the man skilled in the art, as of that time, to determine what pressure he should exert in the chamber before he started pressing.

The Court: Now are you talking about hydraulic pressure, or are you talking about the pressure in the process of solidification?

Mr. Caughey: I am talking at the present time about the pressure in the chamber before pressing started.

A. That is, after solidification, and before pressing?

Q. Yes.

A. Common experience of the industry was to press at atmospheric pressure in an open mold.

Q. What did the patent in suit teach as to pressing [1880] at atmospheric, or near atmospheric, pressure?

A. The patent in suit showed a blower 81, and an exhauster 84, the operation of which I explained at some length. The diaphragm valve 84 acted as a vacuum breaker to maintain near atmospheric pressure in the line leading from the chamber. It, therefore, showed a device which was maintained at atmospheric pressure before pressing.

The Court: Are you talking about the teachings of the patent, or are you talking about what you learned from operating the machine?

(Testimony of Charles L. Jones)

A. I am only trying to say what one skilled in the art would have known at that time about the pressures used in the chamber before pressing.

The Court: Read the question and answer.

(Record read by the reporter.)

The Court: The answer may be stricken. Now, answer the question, please.

A. What did the patent teach?

Q. By Mr. Caughey: To one skilled in the art, with the information he had available, and knowledge he had available, as of that date.

A. The patent teaches, reading from page 2, line 9:

"The exhauster 81 drives the low pressure gas to an expansion tank 82 from which it is returned to the gas holder 12 by a pipe 83. The expansion tank serves as a cushion to prevent large pressure variations in the low pressure side of the system. [1881]

"Around the exhauster 81 a by-pass is provided in which is a diaphragm valve 84 which may be set to maintain automatically a definite pressure condition within the interconnected chambers."

As has been explained, this means to one skilled in the art that the suction of the exhauster in the example given, and at a time immediately before pressing, and after solidification is completed, is necessarily carried to a pressure lower than that in the gas holder 12.

Q. And one skilled in the art would know what those gas holders would usually hold—what pressure?

A. Yes, one skilled in the art would have employed that gas holder probably at not over 8 to 10 inches water gauge pressure, or approximately one-half a pound.

(Testimony of Charles L. Jones)

Q. Were exhausters used in carbon dioxide plants, to your knowledge, at that time?

A. Yes, they were.

Q. What were they used for?

A. They were standard equipment for drawing stack gases from a coke burning boiler through scrubbing towers and forcing those gases through absorption towers for the removal and purification of the carbon dioxide.

Q. With the information given in the patent in suit would a man skilled in the art have knowledge, as of that date, as to how to install the exhauster in the system, as shown in Figure 1? [1882]

A. Yes, he would.

Q. And, when installed, would he need any information other than as given in the patent, and from his knowledge, to operate the same?

A. No, he would not.

Q. Will you please state your reasons for your answer?

A. The exhauster was a standard unit of equipment in the coke process in liquid carbon dioxide plants, of which there were a great many, and the method of installing and operating those blowers was simply a familiar fact to the operators in the business.

Q. Is there anything stated in the patent in suit as to the pressure at which the snow is to be compressed in making the block?

A. Yes, the patent in suit is definite in stating that the compressing plunger is operated by the high pressure cylinders 66 and 68, and Figure 1 of the patent clearly shows that the source of pressure for the operation of this cylinder is line 90, which is connected directly to

(Testimony of Charles L. Jones)

the carbon dioxide pressure discharge, and the patent says on page 1, lines 47 to 51:

"The gas to be solidified is led through a pipe 14 into a compressor 15 from which it is discharged through a pipe 16 at a desired high pressure, for example, about 1200 lbs. per square inch."

Mr. Miketta: If the court please, I move to strike the [1883] answer as not responsive to the question. The question was the pressure to which the show was compressed.

The Court: Read that question and answer, please.

(Record read by the reporter.)

The Court: Do you mean that an expert mechanical engineer, with considerable experience in the manufacture of solid carbon dioxide, could take the rather indefinite statements in the specification, combine them with the apparatus diagram 1, and figure out, if it worked at all, that was the only way it could work? You couldn't take an ordinary mechanic and have him figure that thing all out, unless he started in, and by trial and error, tried every conceivable way, and finally hit on that?

A. I think the mechanic in the case would be a pipe fitter, and I think that if I took the pipe fitter in a carbon dioxide plant, and handed him Figure 1 of the patent, and pointed out to him that the line 16 was the compressor discharge, and that he was to connect that to the cylinders 66 and 68, which in the early times in the industry were merely carbon dioxide cylinders taken from the pipe fitter's own plant, and inverted, provided with connections, and told him to connect up the valves and pipe shown in the sketch, I believe the pipe fitter could do it. The patent

(Testimony of Charles L. Jones)

then instructed the operator to connect cylinder 68 to the expansion tank, and cylinder 66 to the high pressure source to press his product. It seems to me that it then isn't [1884] even a matter of interest to him whether the pressure is 1200 pounds or what it is, provided in that kind of plant that system will work when hooked up in that way, and will work in a definite reproducible manner.

The Court: The specification states:

"Around the exhaustor 81 a by-pass is provided in which is a diaphragm valve 84 which may be set to maintain automatically a definite pressure condition within the interconnected chambers 50 and 60 and the lines and apparatus between them and the exhaustor 81.

"62 is a cylinder in which is a piston 63 having a rod 64 connected with plunger 61. One end of cylinder 62 is connected by a pipe 65 with a pressure tank 66 and its other end is connected by a pipe 67 with a pressure tank 68."

That is about all there is to it, isn't it, other than the Figure 1?

A. No, sir; it says in line 66, page 2—

The Court: I was going to call attention to that also:

"After a desired amount of solidified gas has accumulated in the compression chamber, the upper part of pressure tank 68 is connected to the low pressure pipe 91 and the upper part of pressure tank 66 is connected to the high pressure pipe 90."

A. And the explanation continues as to how that works to press the solid into a solid cake.

The Court: You may proceed. [1885]

(Testimony of Charles L. Jones)

Mr. Caughey: I believe, your Honor, your question was directed to a common mechanic, is that right, in the art?

The Court: Yes, to a mechanic.

Q. By Mr. Caughey: What knowledge was available to one skilled in the art, as of that date, to determine how he should operate under triple point conditions?

A. My answer is the same as to the first question, as to how he would know what maximum pressures to employ in the chamber. He would refer to the Slate patent, showing the triple point cycle, and to standard reference works, to find out what the liquefying pressure or triple point pressure actually is.

Q. He would have to determine what kind of snow he wanted to make; that is, whether snow ice or triple point, would he not? He would have to determine that?

A. Yes, he would have to select for himself what sort of product he wanted to make, or what cycle; whether he wanted to use the example given in the patent, or the Slate process, or perhaps some other solidification cycle.

Q. There has been some testimony previously about the closure head being open, as shown in the drawing, in Figure 1. From your examination of the drawing what would you say as to whether or not that should be shown open or closed?

A. The position of the dotted lines in the cylinders 77 and 75 indicate that the high pressure is, in 75 and 77, connected to the expansion tank so that the closure head 70 [1886] clearly should be to the left instead to the right.

Q. Would a man skilled in the art, as of that time, have to determine the rams and pressures to be employed

(Testimony of Charles L. Jones)

holding the closure as against the internal pressure, and if he would, what knowledge was available to him?

The Court: Read the question, please.

(Question read by the reporter.)

The Court: Answer the first part first, if you understand what he means.

A. He would not have to determine that pressure. He would use the cylinders 77 and 75 of Figure 1 to close the head in the same way that he used 66 and 68 to press a block. He would merely need to open the valve, which the patent specification tells him to open, and would not necessarily have to have any knowledge as to what the pressure was.

The Court: He would just open the valve and let nature take its course?

A. Nature, as guided by the piping diagram of Figure 1, yes, sir.

Q. The apparatus is supposed to be set up as indicated? A. Yes.

Q. It would not make any difference to him what the pressure was; he would open the valve, and let her whoop? A. That's right.

Q. By Mr. Caughey: What knowledge was available to a man skilled in the art, as of this date, as to what he [1887] should do as to relieving the pressure within the pressure chamber to substantially atmospheric pressure, before pressing?

The Court: Will you read the question, please?

(Question read by the reporter.)

The Court: He certainly would know he would have to open up something. That would be about all there would be to it, wouldn't it?

(Testimony of Charles L. Jones)

A. No, sir, I wouldn't agree with that. I think this patent teaches a device in which the operator does not have to open up anything, and does not have to even give a thought to his piping diagram. That is the purpose of the exhauster 81 and the diaphragm 84. He could have made a simpler diagram, just showing the valve exhausting to the air, any place, that the man would have to open each time he made a block, to get the pressure down. With this device he doesn't have to open anything.

The Court: I don't think that is the question you have been asked. You are talking about the teachings of the patent.

Q. By Mr. Caughey: If this knowledge was available to him at the time the patent issued, that included the knowledge in the patent?

Mr. Foster: The date of the patent is the date of the application, May 2, 1928.

Mr. Caughey: If we are going to say the knowledge [1888] was available as of this date, then we would certainly have to surmise that the patent was available to him as of the date of disclosure. You can't blow hot and cold.

Mr. Foster: Mr. Caughey I think is blowing hot and cold. As I understand his question, from these 13 topics, independently of the patent in suit, would a man skilled in the art, from the knowledge then available generally in the art, as of the date of the filing of the application of the patent in suit, have been able to determine these things, which are the deficiencies of the patent.

The Court: We have been doing three things, some concurrently, some separately: 1. We have been talking

(Testimony of Charles L. Jones)

about what one skilled in the art would know as of the date of the application, independently of the patent revelations, or patent teachings; 2. we have been talking about the disclosures of the patent; 3. We have been talking about the disclosures of the patent supplemented by the knowledge of the man skilled in the art. Now here there has been no question about the patent. It is what one skilled in the art would know about relieving that pressure. My statement is that it would not take a man skilled in the art to know that you had to break something open, or you had to get rid of that gas somewhere, if you were going to get it from triple point pressure or above down to atmospheric. If you want something different, it must be put in the question, but it seems to me that is all there is to that, isn't that [1889] true?

A. That's right. There isn't any question.

The Court: A child would know that; so I want you to bring your question down to the teachings of the patent.

(Short recess.) [1890]

The Court: You may proceed.

Q. By Mr. Caughey: At 1363 of the record appears the following question and answer: "Q.—And, therefore, he would have to modify, and actually proceed contrary to the teachings of the patent, in relieving the pressure in that chamber before initiating his pressing operation? "A.—That is so."

Do you agree with that statement and answer?

A. No; I do not.

* * * * *

(Testimony of Charles L. Jones)

A. No; I find nothing in the teachings of the patent which is contrary to reducing the pressure to atmosphere before pressing.

Mr. Caughey: You may cross examine. [1891]

* * * * *

Cross-Examination.

Q. By Mr. Miketta: Dr. Jones, as I understand the testimony you gave yesterday, a block of solid carbon dioxide sublimates and gives off gas, is that correct?

A. That is right.

Q. And similarly, gas is given off during the pressing operation? A. That is correct.

Q. And it is this gas which prevents air entering a pressing chamber in which a block of carbon dioxide is positioned?

A. Yes; if the chamber is not too open.

Q. And this evolution of gas takes place from any block or chunk of solid carbon dioxide, is that correct?

A. Yes.

Q. And such chunk or layer or block, rather, may be visualized as being covered or surrounded with a layer of gas which is being evolved? A. Yes.

Q. Is that layer of appreciable thickness?

A. Yes; it is of appreciable thickness. It is not necessarily pure carbon dioxide, that is, air is diffusing into that layer at the same time that the layer is diffusing outward. [1892]

Q. So that you may say, if this rostrum is a block or chunk of solid carbon dioxide, you have a layer of relatively pure carbon dioxide next to that chunk or block, and then progressively it becomes more dilute as that gas

(Testimony of Charles L. Jones)

diffuses into the atmosphere surrounding that, is that correct?

Mr. Caughey: May I inquire if you are referring to a block of ice that is in the chamber or out of the chamber? The question seems to me to refer to both.

The Court: I think now he is just talking about one exposed to the atmosphere.

Mr. Miketta: Exposed to the atmosphere.

Mr. Caughey: Yes.

Q. By Mr. Miketta: Is that correct?

A. That is correct. That layer of pure gas is very thin.

Q. Yes; but the layer—

The Court: When the block is not confined, of course.

A. Yes.

Q. By Mr. Miketta: When you say "pure carbon dioxide" do you mean just 100 percent carbon dioxide?

A. Yes.

Q. But let us assume that the dilution or diffusion into the air only is sufficient to give you, say, a 50 percent air and 50 percent carbon dioxide content, how thick is that layer?

Mr. Caughey: May your Honor please, I want to object to this as not proper cross-examination. My examination was [1893] directed to gases given off in the chamber. I did not go into the question of the subliming in general or what would happen in the atmosphere and various and sundry conditions. I do not believe it is proper cross-examination, and unnecessarily extending the examination which is not material.

Mr. Miketta: I think we are entitled to understand the reasons underlying the witness' answers, your Honor.

(Testimony of Charles L. Jones)

The Court: Well, I think that is true, but I do not particularly see the materiality. I think you are entitled to determine the knowledge of this man on these subjects, and if it is not too lengthy I won't interfere.

Mr. Caughey: No; it is not, your Honor.

The Court: You may proceed. But I do not think the question is very clear.

Mr. Miketta: Well, I will rephrase it, your Honor.

Q. A block or body of solid carbon dioxide would be surrounded with a layer of gas, with substantially pure carbon dioxide next to that block and of varying degrees of diffusion therefrom. Approximately at what point from the surface of that block would you say that the concentration of carbon dioxide in the surrounding air film is about 50 percent?

A. I would not even attempt to say. In a particular case I would get a gas analysis apparatus and sample tube and find out.

Q. Have you done so? A. Yes. [1894]

Q. And what were your results?

Mr. Caughey: That is objected to as no proper foundation laid.

Mr. Miketta: I am trying to establish the basis for an estimate.

Mr. Caughey: He should have the size of the block, temperature conditions on a particular day, and so on. It is not material.

The Court: It seems to me it is not of very much value what his test happened to show. You might have made that test in a chamber under pressure; you might have done it at atmosphere; you might have done it at varying conditions, where the atmosphere was surcharged

(Testimony of Charles L. Jones)

with moisture, where the air was perfectly rare, where the temperature was high or the temperature low; and the size of the block would have an effect; the density of the block would have an effect, and so on.

Mr. Miketta: I don't think so, your Honor. I think every block gives off some carbon dioxide and forms this film. Let us leave it at that.

The Court: Yes. I think the principle is sound, but when you get down to that much analysis there are too many elements that have to be gone into.

Mr. Miketta: Yes.

The Court: Every one of those might conceivably have an effect upon the answer to that question, might they not, Mr. [1895] Jones?

A. Yes; they would.

The Court: And probably a lot more that I do not know anything about.

Mr. Miketta: Just one more question, your Honor.

Q. Ordinarily air would not enter the pores of that block of material, however, because of the protecting diffusing film of carbon dioxide?

A. On the contrary, air does enter the pores of a block, and rather surprisingly so. You may get as much as 10 percent of air at a depth of a quarter to half an inch inside the surface of the block under conditions where, superficially, you certainly would not expect to find any air.

Q. I certainly would not if there is an out-going subliming gas current, you might say, and this protecting film of carbon dioxide. How do you explain the entrance of air into the block if you have carbon dioxide exuding or being sublimed from that block at all times?

(Testimony of Charles L. Jones)

A. By diffusion. I don't know just what the molecular velocity is of a molecule of air, but I know that fish do swim upstream.

Q. So that actually, then, when you have a chamber with a block in it air could get into the pores of that block when the chamber has an outlet so that it is connected with the atmosphere?

A. It is a chamber, now, in the question? [1896]

Q. We have a chamber with a block and there is a surface exposed on that block. A. I would say no.

Q. In contact with the air or gas in the chamber, and that chamber is in turn in communication with the atmosphere.

A. I would answer no; definitely no.

Mr. Caughey: May your Honor please, I want to again resume my objection. I think that this has gone far enough. I do not see the materiality of counsel. I think, if he can point out to the court where it is, I have no objection; but I certainly don't think it is.

Mr. Micketta: I think it speaks for itself, your Honor.

Q. You have referred to the Flemming patent, 955,454—that is EE-8—and the Julius patent, 1,018,568, which is Exhibit EE-9, and, as I understand your testimony, these devices produce products or sticks of solidified carbon dioxide of medium density, is that correct?

A. Yes.

Q. And with reference to the Julius patent, EE-9, I believe you stated that this produces sticks of solidified carbon dioxide of higher density because that particular device is driven by means of a screw and not simply pushed in by hand, is that correct?

(Testimony of Charles L. Jones)

Mr. Caughey: Just a second. I don't—

A. I did not so state.

Q. By Mr. Miketta: Is it a fact—I am sorry that I [1897] misunderstood you. But is it a fact that in the Julius patent, EE-9, the pressing plunger 34 is moved by means of a hand wheel and a screw shaft?

A. That is correct.

Q. And is it not a fact that a screw is generally used to apply more power than can be normally attained by simply moving the shaft axially by hands?

A. That is correct; and if the chamber in Julius were a smooth-walled chamber, no doubt the screw might apply sufficient pressure so to reverse my answer. I would not be sure that that screw could not apply sufficient pressure to produce a high-density product.

Q. Do you find any description in the Julius patent stating the size of perforations, if any, in the inner cylinder of the device?

A. At the moment I am not sure.

Q. Will you examine the patent and state whether it describes a cylinder provided with perforations? To expedite your examination, Dr. Jones, on page 1, in line 110, I think it is referred to as a "porous tube 24", and the same language appears on page 2.

A. Yes.

Q. In lines 55-56. A. Yes.

Q. Refers to "pores". A. Yes. [1898]

Q. But there are no dimensions given as to the size of those pores? A. I do not find any.

Q. And their number is not specified? A. No.

Q. I believe you had testified some days ago that you were familiar with similar devices known as the Goosman device, I believe? A. Yes.

(Testimony of Charles L. Jones)

Q. Which formed sticks? A. Yes.

Q. And that was prior to 1924, I believe, or between 1926 and 1920, was it? A. I believe so.

Q. And those sticks were in use at that time, is that correct? A. Yes; they were.

Q. What was the diameter of the sticks of solidified carbon dioxide made in the device?

A. The Goosman device made a pencil approximately a half inch in diameter.

Q. Have you ever seen these Julius or Flemming devices? A. No; I have not.

Q. You do not know the size of the pencils or sticks that were made in these?

A. I can only infer that from the showing of the valve [1899] outlet of a carbon dioxide cylinder in Figure 1, which would give this a diameter of certainly less than one inch.

Q. Do you see any reason why a stick of solidified carbon dioxide two inches in diameter could not be made on these devices? A. No.

Q. Do you see any reason why, by following the system used by Julius, for example, one could not make a stick six inches in diameter?

A. I think that, with that construction, the difficulty would increase progressively as you increased the size and it would increase more than in proportion to the size.

Q. What difficulty are you referring to, sir?

A. First, the fact that the device shows no removable closure head except a screwed device, and I believe that, whereas unscrewing a connection to take out a piece of solid from a one-inch pipe is not must of a chore, un-

(Testimony of Charles L. Jones)

screwing a ten-inch pipe to take a piece of solid out of it is quite an operation.

Q. You are referring to the Flemming patent, EE-8?

A. I was referring to the Julius patent at the moment, EE-9; but the same comment applies to the Flemming patent.

Q. I call your attention, Dr. Jones, to the fact that in the Julius patent we have a removable quickly-detached yoke consisting of the arms 18 and 19 hinged on a stud 17 and held together by means of the yoke A. It is not necessary to [1900] unscrew that device from the cylinder, is it? A. No.

Q. And actually, after you have uncoupled the device from the cylinder, all you have to do is then actuate the hand wheel and press the stick from the open end of the cylinder, is that correct?

A. The same comment: The hand wheel presents an entirely different problem in a large commercial block from the problems that would be met in making a pencil.

Q. And what are those?

A. Simply the increased difficulty of handling the larger size.

Q. A question of degree, is that correct?

A. Oh, yes, surely.

Q. You might need a stronger man to operate a hand wheel on a device that makes a one-foot block than you would for making the three-inch blocks?

A. You might not be able to find such a man.

Q. But the presence of perforations or pores or openings in the cylinder 24 of that device does not prevent anyone from extruding a pencil or stick of solidified carbon dioxide from that device, does it?

(Testimony of Charles L. Jones)

A. No; retards the pressing, makes it more difficult to press.

Q. Now, I would like to have you refer to the Holden patent, EE-10, patent No. 1,054,772. If you will refer to [1901] Figure 2, Dr. Jones, you will notice—I think you have commented about the inner cylinder or the inner lining to the chamber or cylinder of that press. How large are the perforations or openings in that inter liner?

A. I don't know.

Q. Do you know their number?

The Court: Which number is this, Mr. Miketta?

Mr. Miketta: This is Exhibit EE-10, your Honor.

The Court: Thank you.

Mr. Miketta: That is the second Holden patent, No. 1,054,772.

The Court: Yes.

A. I noted more particularly Figure 8 in that patent, which shows more clearly the perforated liner.

Q. By Mr. Miketta: All right. What is the size of the opening and the number in there?

A. Well, to save time, let us assume that that chamber is 10 inches in height, and I would say that the perforations shown would be somewhere between one-eighth and one-quarter inch in diameter.

Q. That is your estimate?

A. Based on Figure 8 of the Holden patent.

Q. You are a patent expert. Are patent drawings ordinarily drawn to scale?

A. No. A good deal of latitude is sometimes taken with the patent drawings. [1902]

Q. This device of Holden's was designed and was capable, I take it, of actually pressing ice crystals or ice

(Testimony of Charles L. Jones)

chips into a coherent block and forcing that block out of the chamber by the hydraulic cylinder illustrated at the right or top of Figure 2, is that correct?

A. Yes; but—

Q. Now—pardon me.

Mr. Caughey: Just a second.

A. —I would have to qualify that answer, that there is a fundamental difference between solid carbon dioxide and water ice, in that on application of pressure to water ice shows a phenomenon called “regellation”, that is, water ice can be melted without warming it up by merely applying pressure to it. There is no corresponding phenomenon of the solid carbon dioxide at all. So that it is a great deal easier to get water ice out of such a machine than it would be solid carbon dioxide.

Q. Part of that regellation is caused by the increased temperature?

A. No. Regellation, I think, is familiar to the layman. The pressure of the weight of a man is sufficient to cause the ice to melt in his heelprint if he walks on a surface of water ice at a temperature of, say, 28 to 30 degrees Fahrenheit, a few degrees below the normal melting point; and that is not caused by the heat of the shoe, but the weight, the effect of the weight impressed upon the water ice. The melting point [1903] of solid carbon dioxide is not depressed in that way by pressing.

Q. You can extrude a stick of solid carbon dioxide from the cylinders of Julius and the Flenning patents by simply using a manual means. Will you please explain why it is not possible, in your opinion, to extrude or push out a solid block of carbon dioxide from a machine such as is shown by Holden, keeping in mind that

(Testimony of Charles L. Jones)

Holden shows hydraulic means, pressure means, for pushing that block out?

A. I would not say that is impossible. I would say that the perforated wall greatly increases the difficulty of getting the block out and raises many questions as to how the device may operate, not that it is impossible.

Q. You have never operated the machine?

A. No; I have not.

Q. And it might require a little more power than if you had a completely smooth inner wall, is that correct?

A. Yes. And if I may say so, I was basing my opinion upon the behavior of openings in the side walls of solid carbon dioxide presses, which show defects in the block structure according to the size and arrangement of the openings, require the shearing of the block wherever the material has been forced into such an opening.

Q. The Holden patent includes an inlet, does it not, or the machine of the Holden patent includes an inlet?

A. Yes. [1904]

Q. And it includes a chamber? A. Yes.

Q. And it includes a piston movable in that chamber?

A. Yes.

Q. And it has a closure head? A. Yes.

Q. And there are hydraulic means for moving the piston and the closure head? A. Yes.

Q. And it includes an outlet for fluid gas?

A. Yes. As to inlets and outlets, I have already stated at some length the defects in these parts of the apparatus for making solid carbon dioxide. However, the element corresponding to the words of the question appears in the drawing.

(Testimony of Charles L. Jones)

Q. And I think you commented on the fact that the inlet was at the bottom of the chamber and that if you were making triple point ice, there would be a tendency for that inlet to plug up? A. Yes.

Q. In your opinion, would it require the training of a chemical engineer to move that inlet from the bottom to the side of that chamber?

A. Yes. Without taking too much time to it, as a chemical engineer, the process that patent would suggest to me would be to take solid carbon dioxide and devise some way of making [1905] it in flakes or chips or small pieces and then making that into a slush, possibly with alcohol or acetone or some other liquid in which it could be suspended, and then pumping it into this Holden machine through the inlet shown, and filtering off the alcohol through the porous walls of the chamber, returning the alcohol to the system, and pressing that slush of material in here to form a block of solid carbon dioxide. I don't know; such a process might be feasible.

Q. Dr. Jones, are you speaking as an inventor or as a man skilled in carbon dioxide industry?

A. Well, I am merely looking at a patent drawing and endeavoring to explain to you why I don't think that the inlets and outlets shown correspond to the parts of the same name in carbon dioxide presses.

Q. If you were to introduce liquid carbon dioxide into this inlet and connected the outlet shown by Holden back to a liquefying system of the plant somewhere, is there any reason why you could not make snow in that and compress it into a block?

A. With the inlet properly placed and the necessary changes made in the machine, there is no reason at all why it could not make it.

(Testimony of Charles L. Jones)

Q. Just what changes would you make in the machine?

A. I would alter the position and structure of the inlet; I would take out the—

Q. In what way? [1906] A. What?

Q. In what way?

A. I would put it in the top or side of the chamber and provide it with a nozzle; I would remove the perforated liner altogether; and that is essentially all that would have to be done to the machine.

Q. As a matter of fact, you could leave that liner in there and still press blocks with, perhaps, slightly more horsepower being used in the hydraulic plunger?

A. Well, I don't really know. I have testified that I never ran the machine, and there is a good deal of doubt in my mind as to just how those channels and perforations would work. I don't know.

Q. Let us go to a different subject. I think you stated that the generic term "diaphragm valve" refers to any one of three types: A relief valve, a differential pressure valve, or a pressure-reducing valve.

A. Yes.

Q. Does the patent in suit teach which one of these three are to be used? A. Yes; it does.

Q. Where do you find that teaching?

A. It states that the diaphragm valve is used to maintain a definite pressure in the line 80, which indicates clearly that the diaphragm valve is to be responsive to the pressure in the system on the left side of the valve, as [1907] shown in the diagram, and not to the differential pressure or to the pressure on the right.

(Testimony of Charles L. Jones)

Q. During what period of time in a cycle does that diaphragm valve 84 maintain automatically a definite pressure in that line 80?

A. In the example recited in the patent it does it at all times, but in practical—

Q. Throughout the entire cycle of operation?

A. Yes; throughout the entire cycle of operations, but in the—

Q. Please explain to me how.

Mr. Morris: He has not finished his answer.

Mr. Miketta: Pardon me.

A. But in the practical operation of the machine it has no effect whatever on the pressure in the line 80 so long as the blower is small in proportion to the rate at which gas is supplied to it; and under those conditions it operates only after the liquid supply to the machine has been shut off and the exhauster has reduced the pressure to the value for which the valve has been set.

Q. Now, will you please refer to Fig. 1, first of all? The pressure in 82 and line 83 is on the order, I think you said, of 6 or 8 inches of water, or half a pound, is that correct?

A. Well, it might be. I would agree with Professor Clapp, it could be anything up to about, say, two pounds. [1908]

Q. It could be. Actually, in practice, I think you stated that gas holders such as gas holder 12 were operated at a pressure of not more than about half a pound, is that correct?

A. No. I stated a probable example as to how one skilled in the art would be likely to operate such a gas

(Testimony of Charles L. Jones)

holder and might operate it at any pressure up to two pounds.

Q. All right. So your maximum pressure at 82, let us say, may be as high as two pounds?

A. That is correct.

Q. The pressure for which the diaphragm valve 84 is set is a pressure of, say, one pound or a half pound or zero gauge?

A. That is correct.

Q. So that the diaphragm valve 84 would not permit the flow of gas from 82 into line 80 unless the pressure in line 80 was on the order of one pound, half a pound, or zero gauge?

A. That is correct; no gas will flow through the diaphragm valve unless the pressure in line 80 is below the pressure for which the valve is set.

Q. And the pressure for which the valve is set may be anything from one pound to even sub-atmosphere pressure, is that correct?

A. It could be.

Q. The chambers 50 and 60 are inter-connected, are they not? [1909]

A. Yes.

Mr. Caughey: And you are referring to Fig. 1 in that question?

Mr. Miketta: Yes.

Q. And the head 70 is supposed to close that chamber before snow formation takes place, is that correct?

A. Yes.

Q. It is not so shown in the drawing, but I believe you stated that it should be closed?

A. Yes.

Q. At the initiation of an operation, with the chamber closed and the valve 39 still closed so that no liquid is

(Testimony of Charles L. Jones)

being injected, what pressure would you have in the associated chambers 50 and 60?

A. You would have whatever pressure the diaphragm valve 84 has been set to maintain.

Q. In other words, you can have a pressure of one pound, zero gauge, or a sub-atmospheric pressure?

A. That is correct.

Q. But not in excess of one pound?

A. Not in excess of the gas holder pressure, in any event; not in excess of the pressure for which the valve is set.

Q. When you open the valve 39 and inject liquid carbon dioxide into the chamber 50 some vaporization will take place, will it not? [1910]

A. It will.

Q. And the pressure in the chamber 50 will rise?

A. Yes.

Q. And throughout the injection period some pressure in excess of one pound or two pounds will exist in chambers 50 and 60 and line 80, is that correct?

A. No; it will only exist if the exhauster is sufficiently small in proportion to the snow machine so that it is not capable of taking all the gas away at the pressure set on the diaphragm valve. In order to build up a pressure higher than that for which the diaphragm valve is set it is necessary to give the exhauster more gas than it is capable of taking away.

Q. Is there any statement in the patent to the effect that the exhauster 81 should be of sufficient size to actually take away all of the gas which is formed during the snowing operation?

A. I do not believe there is too definite a statement about the capacity of that blower, that exhauster, in the patent.

(Testimony of Charles L. Jones)

Q. Will you point to any statement?

A. I am in difficulty, because the statement, which is page 2, line 9, relies entirely upon the connotation given to the verb. It says: "The exhauster 81 drives the low pressure gas"—I don't know just how to interpret that. I don't know that I can interpret it. Professor Clapp [1911] interpreted it to mean that the pressure in the exhauster suction always had to be lower than the pressure in the lower outlet.

Q. As I understand—pardon me.

A. It might mean that it drives the gas out of the press only during a part of the cycle, while during some other part of the cycle it might not drive it at all. I am frank to say that I can't tell.

Q. As I understand your present explanation, Dr. Jones, the exhauster is supposed to maintain this pressure of, we will say, below one pound or thereabouts in the line 80 and in the chambers 50 and 60?

A. At the conclusion of the solidification operation, yes; and, perhaps, during the solidification itself. I do not know.

Q. Well, that is what I am trying to find out. I approached it from the other angle first and asked you whether during the period that liquid CO₂ was being injected into the chamber 50 a pressure above two pounds or one pound would be formed in that chamber 50 and 60 and in the line 80, and I understood your answer to be "No:" because the exhauster 81 would drive it away.

A. That was a part of my answer. If the exhauster 81 is of sufficient capacity to take it away, the pressure—

(Testimony of Charles L. Jones)

Q. The patent does not teach you what pressure to use?

A. The patent is entirely silent as to the exact size of [1912] the exhauster, and that is a detail which one skilled in the art would presumably determine for himself; that is, to tell him that that should be what number in a catalog or what the exact size of that blower should be is hardly within the scope of the ordinary patent specification. We have nothing in the patent specification on which to base any conclusion, except the verb "drives" in line 9, page 2, and I have no more skill at interpreting that, I think, than anyone else. I don't know.

Q. You are a man skilled in the art, are you not?

A. I don't know that the word "drives" means to me any more than it means to anyone else.

Mr. Caughey: Just a second. Are you asking this question to him as a man skilled in the art, now, or as to one who is a patent expert? Is this last question directed to him as one skilled in the art? Is that my understanding?

Q. By Mr. Miketta: As of what date did you answer that question, Dr. Jones?

A. I haven't really answered it and I can't answer it.

Q. Very well. The exhauster 81, then, and its relative size is the thing that determines the maximum pressure which will be generated in chambers 50, 60, and line 80, is that correct?

A. By no means. The valve 80a is in that line and is the most convenient means for the operator's use in case he wants to build up a pressure in the chamber 50. [1913]

(Testimony of Charles L. Jones)

Q. Well, is it not a fact, Dr. Jones, that that particular valve does not bear a number in the original patent?

A. Yes.

Q. Do you find any description in this patent at all indicating that that valve is to be manipulated in any way for the purpose of building up a pressure in the chambers 50 and 60?

A. No.

Q. And is it not a fact that the patent, on page 2, lines 14 to 20, states that "Around the exhauster 81 a by-pass is provided in which is a diaphragm valve 84 which may be set to maintain automatically a definite pressure condition within the inter-connected chambers 50 and 60 and the lines and apparatus between them and the exhauster 81"? That is correct, is it not?

A. Yes; except as to the emphasis. The verb in the sentence is "may be set."

Q. And the verb which precedes that refers to the diaphragm valve 84, does it not?

A. "Which may be set," yes.

Q. By the Court: Just how are you going to do it to maintain automatically a definite pressure condition within the inter-connected chambers 50 and 60 and the lines and apparatus between them and the exhauster 81?

A. Well, a man starting to operate this machine would [1914] employ a nozzle size on the pipe 51 which would determine the rate at which he made snow in the chamber; and if he were one skilled in the art and installed this device expecting that it would maintain a definite pressure, and found that, although he wanted to maintain a pressure of one pound, he was getting two or three or thirty pounds on the exhauster intake—I say, if

(Testimony of Charles L. Jones)

he wanted to maintain one pound and did not prefer to just let that condition exist, he would obviously use a smaller nozzle in the line 51 so as not to feed gas so rapidly to the exhauster.

Q. If he wanted to maintain a pressure of one pound he would not make any triple point ice?

A. No, sir; not maintaining a pressure of one pound.

Q. He might as well throw the apparatus into the sewer, if that is what he wanted to make, triple point ice?

A. Oh, no. If he wanted to make triple point ice, he would not throw the apparatus away; he would close the valve 80a, but the patent does not tell him to do that. The patent merely shows the apparatus.

Q. Yes. But the patent does not say—as I have read it many times—it does not say anything about any other arrangement. Now, in this line, in this drawing, Figure 1, they show a valve on the conduit line, the vertical conduit line 80; it shows a valve on the lateral line leading off to the left; it shows a valve at the top from that vertical line leading off the valve; it shows another valve on the conduit [1915] line 34; and it shows a valve on 38; it shows valves on both sides of the tanks 75 and 77; it shows in the drawing a good many different valves; but when it comes to talking about maintaining the pressure, it does not say anything about the valves at all; it relies upon the exhauster and the diaphragm valve. Manifestly the minute you open the inlet valve 39 you are going to begin to have evaporation, you are going to begin to build up pressure, aren't you?

A. Yes, sir.

(Testimony of Charles L. Jones)

Q. Now, he apparently proposes to control that pressure through the exhauster, and not by him closing that valve.

A. In the example stated in the patent; yes.

The Court: We will adjourn until quarter after two. That will give you time.

(Whereupon a recess was taken until 2:15 o'clock p. m. of the same day.) [1916]

Afternoon Session

2:15 O'Clock.

DR. CHARLES L. JONES,

recalled.

Cross-Examination,

resumed.

The Court: Let's see; we were at the point where you said you would not just throw the apparatus away; you would just turn the valve.

The Witness: That is correct.

Q. By Mr. Miketta: Dr. Jones, as I understand your testimony, the term "definite pressure" as used in this patent refers to these pressures at one pound, half a pound, zero, or sub-atmospheric, is that correct?

A. As I read the specification, I think the word "definite" is in the description of his example, and that is what it means.

Q. And such definite pressure is to be maintained during the entire operation of the machine?

A. In the example of the specification; yes.

(Testimony of Charles L. Jones)

Q. During the formation and the collection of solid carbon dioxide in the chambers 50 and 60 to which the line 80 is attached?

A. In the example given in the specification; yes.

Q. And if you did not have this diaphragm valve 84, you could not maintain that definite pressure in those chambers? A. No; I would not say that. [1917]

Q. Will you please point out wherein in the patent any other means for maintaining a definite pressure is disclosed?

A. As I have pointed out, the diaphragm valve maintains its open or closed position responsive only to the pressure in the line 80; and if the relation between the speed at which you are making snow and the size of the blower is such as to maintain a uniform pressure in that chamber with the diaphragm valve closed, in such a case the diaphragm valve makes no difference during that period.

Q. Is it not a fact, though, Dr. Jones, that the patent only discloses one means for maintaining a definite pressure and that means is the diaphragm valve 84?

A. No.

Q. When the patent states, on page 2, in lines 14 to 20, the matter which we have previously read, does it not state there that the diaphragm valve may be set to maintain automatically a definite pressure?

The Witness: Will you read the last question back to me, please?

(Question read by the reporter as requested.)

A. The patent discloses three means as parts of the system which influence the pressure, possibly I should say four. The patent discloses means 81, the exhaustor; the

(Testimony of Charles L. Jones)

means 84, diaphragm valve; the unnumbered valve means 80a which—strike that—and the liquid inlet connection 51, all of which elements necessarily affect the pressure in the [1918] chamber. The wording of the specification only discusses the cooperation between the exhaustor 81 and the diaphragm valve 84.

Q. But there is no actual description or teaching regarding the valves which you have mentioned in your preceding answer? A. What do you mean?

Q. The unnumbered valve?

A. A description of the—

Mr. Caughey: Just a second. I object to the question as indefinite whether he is talking about teachings from what one would get from it, or whether he is talking as to the written language or drawings or what.

Mr. Miketta: I will rephrase it.

Q. But there is no statement in the patent calling your attention to those valves or their manipulation, is that correct?

The Court: Now, by “those valves” you mean which ones?

Mr. Miketta: The valves to which we have referred as 80c and 80a, your Honor. A. Oh. No.

Q. The chambers 50 and 60, together, constitute a chamber, do they not? A. They do.

Q. How large should 50 be with respect to 60?

A. In the approximate proportions shown in Fig. 2. [1919]

Q. Can you point to a statement in the patent, Dr. Jones, which teaches you to maintain those particular proportions? A. No.

(Testimony of Charles L. Jones)

Q. In other words, considerable variation could exist between the relative sizes of chambers 50 and 60?

A. It might be possible. I don't know why anyone would vary or alter that proportion, unless he had some reason for doing so outside the disclosure of the patent.

Q. Am I correct in understanding you to state that if a chamber is provided with a pressing plunger movable therein and with a movable closure at one end, and that chamber had but a small offshoot with a snow valve located in that, then it would not embody the machine shown in this patent, is that correct?

A. I cannot answer that question without having before me a drawing in as responsive showing the detail and proportions as this drawing, so that I could compare the two machines.

Q. Well, assuming that—

The Court: Just a moment, please. Will you read that question again?

(Question read by the reporter.)

Mr. Caughey: May your Honor please, I do not understand what the question means. It is not definite to me; it may be to your Honor. There certainly is no testimony in the—

The Court: I am frank to say I do not get it. Read it [1920] to me again and see if I am just dumb.

(Question again read by the reporter.)

Mr. Caughey: I do not so recall the witness testifying on direct examination. I don't know what they are getting at here. He has not testified, as far as I can remember—

Mr. Miketta: May the court please, the witness in a previous answer stated that these relative sizes of the

(Testimony of Charles L. Jones)

snow chamber 50 and of the compression chamber 60 are apparently critical. I am just attempting to elicit from him an opinion as to whether a pressing chamber 60, provided with a movable pressing plunger therein and a movable closure member, and also including a small adjacent chamber or extension—a small one in comparison with the size of the pressing chamber—and that small size chamber were provided with an inlet valve or snow valve, whether, in his opinion, this machine would embody the machine of the patent, built in accordance with his understanding of this patent.

Mr. Caughey: I also object as assuming a fact not in evidence, in connection with my previous objection.

Mr. Morris: May I add just one word; that it seems to me that the witness is being asked to interpret the claims of this patent. True, quite indirectly; nevertheless, the question really is an attempt to find out, or have this witness say to your Honor that you can or cannot find a certain machine to be an anticipation of the patent in suit—of the claims. [1921]

Mr. Miketta: I don't think that is true, your Honor. I am simply trying to find out what this witness means by his last answer, so the best way is to give him an example, but let's find out what he says about that.

The Court: Let us see what his answer will be. Maybe I can judge better after I get the answer.

A. Referring to the patent to Julius—

Mr. Caughey: You direct him to Figure 1 of the patent?

Mr. Miketta: Figures 1, 2 and 3.

A. Referring to the patent to Julius, 1,018,568, I find there a chamber, a pressing plunger; I find a small ad-

(Testimony of Charles L. Jones)

jacent chamber 11, and snow is injected into the small adjacent chamber 11. I am merely trying to illustrate or show the court that I can't answer the question, because I certainly would not say that the apparatus shown in Julius is the equivalent to the apparatus Fig. 2, and I have not been shown drawings, or anything to compare with Fig. 2, and I don't know what machine the question is being asked about. I can't answer it.

Q. Are you familiar with the Frick presses?

A. Yes.

Q. They constitute a chamber with a plunger, and closure; then there is a side opening in which a snow valve is located, is that correct? A. Yes.

Q. Do you know the relative sizes of those? [1922]

A. Yes.

Q. Is it your understanding that the subject matter of this patent is not involved in the Frick press?

Mr. Caughey: That is objected to as calling for the conclusion of the witness, and usurping the power of the court. It is immaterial at the present time.

The Court: I think so. I think that is my job.

Mr. Miketta: That is right, your Honor.

The Court: Unfortunately.

Q. By Mr. Miketta: The valve 39, shown in Figure 1. Dr. Jones, is automatically actuated, is it not?

A. It is so shown in the example.

Q. You continue to refer to an example. Is there more than one in this patent?

A. No, the patentee only gives one example of the operation of his process.

Q. Will you please state where in this patent the example begins and ends? [1923]

(Testimony of Charles L. Jones)

A. I don't know that I can do that. Practically the entire specification is directed to a single example, except for the portions that are descriptive of the apparatus itself.

Q. Valve 39 is a part of the apparatus, is it not?

A. It is.

Q. So that the example includes the apparatus?

A. That is correct.

Q. Liquid is injected by the valve 39 whenever the piston 61 is in its retracted position, as shown in Figure 1, is it not?

A. Yes.

Q. And liquid continues to be injected into that chamber 50 during movement of that compression piston 61, or at least a part of the stroke; is that correct?

A. Will you read the question, please?

(Question read by the reporter.)

A. I should say that is the way the illustration would seem to indicate.

Q. Dr. Jones, I think you stated that even a plumber could hook up the pipe, and would know from the description of the patent just how much pressure should be applied to the snow in the compression chamber 61?

A. Yes.

Q. And I think you referred to the fact that you started off with liquefied carbon dioxide at about 1200 [1924] pounds per square inch?

A. I did not.

Q. I beg your pardon.

A. I did not.

Q. Will you please point out in the patent where the pressure in pounds per square inch to which the snow is compressed is mentioned?

(Testimony of Charles L. Jones)

A. Page 1, lines 47 to 51:

"The gas to be solidified is led through a pipe 14 into a compressor 15 from which it is discharged through a pipe 16 at a desired high pressure, for example, about 1200 lbs. per square inch."

There is no liquification in that pipe. That pipe carries only high pressure uncondensed hot gas at the pressure stated. There is no statement of liquefaction.

Q. That did not answer my last question, though: To what pressure is the snow compressed in the compression chamber in pounds per square inch?

A. I have said that I see no reason why anyone would depart from the proportions of the patent, and in the patent, as shown, the cylinder 62 is somewhat smaller in dimensions than the cylinder 60, so that the pressure actually exerted on the solid is less than 1200 pounds per square inch, in inverse proportion to the area of the hydraulic cylinder as compared with the area of the pressing plunger.

Q. Is it your opinion, then, that one should measure [1925] these patents and these devices in accordance with the proportions there shown?

Mr. Caughey: I object to that as immaterial, as to what his opinion should be on that subject. It is not material at all.

The Court: Overruled.

Mr. Caughey: I think the witness has already stated—

The Court: He is an expert. He can express his opinion.

A. I think that one skilled in the art, if he had never seen such press, and decided he wanted to build the press, Figure 1, of Cole and McLaren, the first thing he would

(Testimony of Charles L. Jones)

reach for would be a scale to measure dimensions for the drawing, and I believe, unless he had some reason to depart from that, maintain at least the approximate proportions that the patent shows.

Q. Can you state from an examination, for example, whether this chamber 60 is supposed to be 6 inches in diameter, or is it 6 inches square, or just what is the size of that?

A. One skilled in the art would attempt to make a commercial product to meet the demands of the trade. It has been well established for many years that the standard size of a block is a 10-inch cube; so I don't believe I would even, if I were one skilled in the art—I don't believe I would even bother reading the specification to [1926] find out whether or not it did say it was 10 inches. I would make it 10 inches.

Q. If you were in the business of making pencils, you would make them 2 inches in diameter, or 1 inch, or whatever it is?

A. I would make them a half-inch, yes.

Mr. Miketta: That will be all.

Cross-Examination.

Q. By Mr. Foster: At page 1816 you testified as follows, beginning at line 15:

“Q.—Do you have personal knowledge of the operation of these exhausters, Dr. Jones?

“A.—I do.

“Q.—You have actually operated them?

“A.—I have operated the blower which is the basis of the schematic representation 81, in the Long Island City

(Testimony of Charles L. Jones)

plant of the General Carbonic Company, Sixth Street and Hudson River."

A. That is correct.

Q. You didn't operate a blower, or any apparatus connected with a snow press, at that location, prior to December, 1928, did you? A. I did not.

Q. You have no actual knowledge of your own upon which to base your statement that the blower that you saw there in December, 1928, was the basis of the schematic [1927] representation 81, or Fig. 1 of the patent in suit, did you? A. No, I don't know that.

Mr. Foster: I move that the statement of the witness then be stricken, your Honor.

The Court: Read it to me again, please.

Mr. Foster: The answer was: "I have operated the blower which is the basis of the schematic representation 81, in the Long Island City plant of the General Carbonic Company, Sixth Street and Hudson River."

The Court: I think it should not be stricken, but he has changed the statement on clarification.

Q. By Mr. Foster: You referred, in your direct examination, to the operation of some apparatus, pressing apparatus, in which you had a pressure of about 30 or 40 pounds on the inlet side of an exhaustor such as the exhaustor of Fig. 1 of the patent in suit. Do you recall that you operated such an apparatus? A. Yes.

Q. When did you operate it?

A. Intermittently—

Q. First, when?

A. Between December 5, 1928, and until the time when the press of Fig. 5 was removed from the Long

(Testimony of Charles L. Jones)

Island City plant, where it occupied a position corresponding to that shown in Figure 1 in this piping hook-up.

Q. December 5, 1928, until what date? [1928]

A. I can only give that approximately; about March 1, 1929.

Q. By December 8, 1928, you were thoroughly familiar, were you, with the construction and operation of the press illustrated in Figs. 1, 2 and 3 of the patent in suit?

A. No, I wouldn't say I was thoroughly familiar with that. The Dry Ice Company had just commenced the relationship with the Liquid Carbonic Company, which in turn was just initiating a relationship with the General Carbonic Company, that relation being that they had taken over General Carbonic Company, and purchased all of its assets.

Q. Your answer to my question is no, I take it?

A. Will you read the question?

(Question read by the reporter.)

A. The answer is no.

Q. In the operation of this apparatus, which you commenced December 5, 1928, you said that the blower acted as a brake when it had on its inlet side 30 or 40 pounds of pressure? A. That is correct.

Q. Is there any description of the patent in suit of such operation of the exhauster 81? A. No.

Q. You stated that in that operation the speed of the exhauster fluctuated. Is there any description in the patent in suit of such operation of the exhauster 81? [1929] A. No.

(Testimony of Charles L. Jones)

Q. Likewise, when you operated that apparatus, did you discontinue the operation of the exhaustor 81 at any time during the cycle?

Mr. Caughey: That is objected to unless tied down to a definite time.

The Court: Read the question, please.

(Question read by the reporter.)

The Court: You may answer it. As at any time during the cycle did you have?

Mr. Caughey: At any time during the cycle, but—

The Court: Well, December 8th to March 1st—December 5th to March 1st.

Mr. Caughey: Is that what he means by “cycle” is a time cycle?

Mr. Foster: I had not meant that, your Honor.

The Court: Operation cycle.

Mr. Foster: During the cycle of operation, but I was referring to the operation of this machine to which the witness testified, between December 5, 1928 and March, 1929.

The Court: Yes.

Mr. Caughey: Well, the reason I made the objection, your Honor, was because we have had testimony here that it was operated both in making snow ice and triple point, and I wanted to be sure what he was testifying to.

The Court: He says, “at any time through both.” [1930] Do you understand the question, Doctor?

A. Yes. I don't know that I can remember the answer. During that period I was trying to decide what kind of solidification apparatus to adopt and—

(Testimony of Charles L. Jones)

Mr. Foster: Pardon me just a moment. Is your answer that you do not remember?

A. No. I will have to make that a little longer. I went to that plant intermittently, from time to time, and ran short experimental runs on this machine; that is, I did not operate the machine throughout that period. I was not responsible for the operation of that plant. I did not stay there all the time. I went there from time to time, made snow ice under different conditions, triple point ice; each run was an experiment. On one occasion my notes show that I went over there and I made one block. Obviously, I discontinued the operation of the exhauster just as soon as the block was made and the experiment was over; so I do not understand the question exactly.

Q. Was this apparatus which you have just referred to as operating between December 5, 1928 and March 1, 1929 the apparatus illustrated in Fig. 1 of the patent in suit.

A. No. The apparatus as shown in Fig. 1 and 2 of the patent in suit was operating more or less continuously in that plant, and my interest in its operation was more or less incidental and as an observer. The apparatus of Figure 5 of the patent had just been installed, and most of [1931] my interest in the operation there was centered around the apparatus of Fig. 5. [1932]

Q. By the Court: Had just been installed at the beginning or the close of that period?

A. At the beginning of that period.

Q. By Mr. Foster: And in your operations, where you stated you had a pressure at the inlet side of the

(Testimony of Charles L. Jones)

exhauster 81 of 30 to 40 pounds, that was with an apparatus of the type illustrated in Fig. 5 of the patent in suit, is that correct?

A. That was with both types.

Q. With either of those types when you had such pressure during that period at the inlet side of the exhauster did you at any time during the continuous operation of the machine de-energize that exhauster 81?

A. No.

Q. It continuously operated at all times?

A. It operated continuously.

Q. You referred in your direct examination to undertaking to operate Slate's process in some other apparatus.

A. Yes.

Q. Was it apparatus like Figs. 1 and 2 or like Fig. 5 of the patent in suit that you had in mind?

A. At that time in Fig. 5.

Q. This Slate process you referred to as being described in a patent owned by the company, is that correct? What company?

A. By the Dry Ice Company.

Q. By the Dry Ice Company. What was the process that you [1933] had in mind when you referred to undertaking to use the Slate process in this apparatus of Fig. 5? Will you explain to the court in your own words, please?

A. The process of charging the pressing chamber with liquefied carbon dioxide, and then by reducing its pressure converting it into a solid and pressing the solid.

Q. What changes in this apparatus of the type illustrated in Fig. 5 did you suggest in order to perform the Slate process?

(Testimony of Charles L. Jones)

A. At first I did not suggest any, and I might have been inclined to take a chance on the apparatus exactly as it stood.

Q. I am not interested in what you might have done.

A. However, I will have to explain.

Q. Just a moment. I am not interested in what you might have done. Did you suggest any changes in the apparatus of the type illustrated in Fig. 5 of the patent in suit to carry out the process in Slate?

A. Just when ordered to do so.

Mr. Caughey: Will you please fix the time, so there won't be any question. I mean when he first went over there. I don't know whether it is material, but I think we ought to have some time here.

Q. By Mr. Foster: When was it that you were undertaking to perform the Slate process in an apparatus of the type illustrated in Fig. 5 of the patent in suit? [1934]

A. Well, it was late in January, 1929.

Q. What were the changes you suggested be made in that apparatus for that purpose?

A. May I inject this thought: That I looked at that device, together with my superior, and wanted to make certain trials in it and it was a chamber of welded plate construction; and he said, "Well, I won't permit you to make any trials of the triple point in that apparatus until you can satisfy me that it is not a dangerous operation."

Mr. Foster: I move to strike the answer of the witness as non-responsive to the question.

A. And in order to meet that objection I made certain changes.

The Court: It may be stricken.

(Testimony of Charles L. Jones)

Q. By Mr. Foster: You said that you suggested certain changes in this apparatus of Fig. 5 in order for you to perform the Slate process in it. What were the changes?

A. Cut openings through the outer jacket shown at 102 in the patent drawing and put stay-bolts at rather frequent spacing over the sides of the chamber and welded them in place so as to reinforce the sides of the chamber.

Q. Did you suggest any other changes?

A. None that I recall.

Q. Did you suggest any changes in apparatus of the type illustrated in Fig. 1 of the patent in suit in order to enable you to attempt to operate Slate's process in that [1935] apparatus?

A. I made sure that the valve corresponding to 80a we have been discussing here—which might as well have a number on Slate's patent, if I can find it. Let me see '681, please. I made sure that the valve corresponding to the valve 5 in the patent to Slate was in such a position and provided with a suitable chain wheel so that it could be readily used to control the pressures.

Q. You are referring to the Slate patent 1,546,681 in that answer? A. That is right.

Q. To your knowledge, never before January, 1929 had apparatus such as illustrated in Fig. 1 or Fig. 5 of the patent in suit been used to make triple point ice, is that correct? A. So far as I know.

Q. And the apparatus was then used, such apparatus was then used for such purpose because you suggested it, is that correct?

(Testimony of Charles L. Jones)

Mr. Caughey: That is objected to as calling for a conclusion of the witness. He does not know what happened before that time by other people.

The Court: I think the objection is sound. I think you should change the form of the question.

Q. By Mr. Foster: Did you then make the suggestion that such apparatus be used to make triple point ice or did [1936] someone else suggest it to you?

A. No; I made the suggestion.

Q. To whom?

A. To my associates in the Dry Ice Corporation.

Q. And they included Mr. Cole? A. No.

Q. Or Mr. McLaren? A. No.

Q. You referred in your direct examination to vent pipes which were employed to vent a solidifying and compressing chamber; and at page 1830 of the record you were asked, at line 19, this question: "And what would you say as to whether or not there would be any possibility of any air coming into the chamber through a vent to atmosphere during the pressing period?"

"A—During the pressing period air will not enter the chamber through a normally-sized vent to atmosphere."

What is the cross-sectional area of the vent that you had in mind as the "normally-sized vent"?

A. Will you read the previous statement again? At what time in the pressing; is that during pressing?

Q. That was during the pressing. Your answer was: "During the pressing period the air will not enter the chamber through a normally-sized vent to atmosphere."

Q. By the Court: You meant by that, that the gas going out would keep the air from coming in if the vent was not too [1937] large, didn't you?

(Testimony of Charles L. Jones)

A. Yes. I don't like to get into these lengthy explanations—

Mr. Morris: Would Dr. Jones answer his Honor's question?

A. Oh, I am sorry. As to the vent pipe, first, a pipe, say, two inches, two inches in diameter or smaller—

Mr. Morris: May I interrupt again? Dr. Jones, the court has asked a question of you.

The Court: Read my question.

The Witness: I beg pardon.

(Question by the court read by the reporter and the answer "Yes.")

A. Yes, yes.

Mr. Foster: Might I have the reporter read me his subsequent answer?

(Record read as requested.)

The Court: Now, Doctor, you were starting to tell about the size of the normal vent. Had you finished that answer?

A. No. The vent is of two distinct means. There is the venting through the vent pipe and there is the venting, if any, around the lower platen. The vent around the lower platen is determined, not by the dimensions of the machine, but by the fact that the solid itself is pressed tightly against the wall in the lower portion of the chamber. So I do not—

Q. By the Court: You would really not describe that as a [1938] vent, would you; that is just a leak; that is just a place where the gas goes out. And when you are talking about a vent, you are talking about a particular pipe that is meant for the purpose of venting the gas, aren't you?

(Testimony of Charles L. Jones)

A. The question is limited, then, to the pipe.

The Court: Yes.

A. Well, the answer is yes; two inches or smaller.

Q. By Mr. Foster: In your answer, you said "during the pressing period the air will not enter the chamber through a normally-sized vent to atmosphere." If we have an opening in this chamber of, say, 10 square inches, will the air enter during the pressing period?

Mr. Morris: May I inquire where that vent is in the chamber, whether located the same as defendants' vent or otherwise?

The Court: Well, I don't know that you are entitled to it. I am rather curious as to it myself, however.

Mr. Foster: The witness was referring, at page 1830, to a press in general, as I understood his testimony, and perhaps the preceding question and answer will show that. He had been asked his familiarity with Roots blowers and whether he was an engineer.

"Q—In pressing snow or triple point ice in a press are gases given off all during the time of pressing?

"A—Yes; they are.

"Q—And what would you say as to whether or not there [1939] would be any possibility of any air coming into the chamber through a vent to atmosphere during the pressing period?

"A—During the pressing period the air will not enter the chamber through a normally-sized vent to atmosphere."

Now I want to know if the vent to atmosphere were 10 square inches in area, cross-sectional area, whether air would come into that chamber from the atmosphere.

Mr. Caughey: May your Honor please—

(Testimony of Charles L. Jones)

The Court: Well, how could it be? If it was open, no pressing operation could be going on because there would be nothing to press against or nothing to press with, one or the other.

Mr. Foster: The opening might be in the side of the chamber. In other words, we might have a piston that is pressing against a closure head which is in a stated position, but the opening might be in the side. What I am getting at is how—

The Court: Now I see. Then, the fact that you happened to take 10 square inches has nothing to do with the size of the block.

Mr. Foster: Not at all.

The Court: You just picked that at random.

Mr. Foster: That is true.

The Court: All right; you may answer, if you can.

Mr. Foster: And my question does not contemplate necessarily an opening which is 10 inches square; it is an [1940] opening in any shape.

The Court: That has an area of a hundred square inches.

Mr. Foster: No; it is 10 square inches.

The Court: 10 square inches.

A. Again, I can't answer unless I am told where that vent is, what shape it is, whether it is in the top, the sides of the chamber, or the bottom.

Q. By Mr. Foster: All of those things would affect, in your opinion, the question of whether atmosphere would enter through an opening of 10 square inches during the pressing operation?

A. I don't know. I don't understand the question.

(Testimony of Charles L. Jones)

Q. Well, let us refer to Fig. 5 of the patent in suit. Now, there is during the pressing operation a connection of the pressing chamber to the atmosphere, isn't there?

A. Yes.

Q. Is that to the atmosphere?

A. To atmospheric pressure.

Q. To atmospheric pressure. And that is through which opening in the pressing chamber?

A. It is through the opening unnumbered which appears on the righthand wall of the outer jacket immediately below the line leading to numeral 102.

Q. And that communicates with the chamber 100 through the openings 101, is that correct? A. Yes.
[1941]

Q. If the openings 101 and the opening you referred to as unnumbered were, each of them, 10 square inches in area and the unnumbered opening communicated with the atmosphere, would air enter during the pressing operation?

Mr. Caughey. May your Honor please, I do not see the materiality of this. As far as I can determine, the patent does not communicate with the atmosphere there; it goes into the line and is so described in the patent. So I can't see the materiality of this particular line of questioning.

Mr. Foster: Well, Mr. Caughey, you asked him about the possibility of air coming into the chamber through the vent to atmosphere during the pressing period. He has referred to a normally-sized vent to atmosphere.

Mr. Caughey: He has said what he means by it.

Mr. Foster: And I want to determine what he means by it.

(Testimony of Charles L. Jones)

Mr. Caughey: He said two inches or less; that is what he said.

Mr. Foster: A vent pipe. His answer here was not limited to a vent pipe; his answer on the stand has been.

The Court: You may answer.

A. If the openings 101 had an area of 10 square inches and those in the outer jacket also had an area of 10 square inches, I believe appreciable quantities of air would enter the jacket 102 but little or no air would find its way into the pressing chamber 100.

Q. By Mr. Foster: Would you, from your experience in the [1942] art of solidifying and compressing carbon dioxide, call the chamber 100 a closed chamber if the vents to which you have just referred were 10 square inches in cross-sectional area and communicated with the atmosphere?

A. That would depend entirely upon whether that communication was prevented or interrupted by a mass of solid carbon dioxide.

Q. If you assume that the vents 101 and the unnumbered vent to which you have referred are as located in Fig. 5 of the patent in suit, what is your answer?

The Witness: What is the question?

(Question read by the reporter.)

A. And they are 10 square inches in area and remain open at all times and unobstructed by a mass of solid carbon dioxide, my answer is that it is not a closed chamber.

Q. And what is your opinion, Doctor, from your intimate familiarity with the operation of the apparatus of the type illustrated in Fig. 5 as to whether the vent

(Testimony of Charles L. Jones)

101 and the unnumbered vent to which you have referred would remain unobstructed?

A. I have no opinion. I have observed them when they were unobstructed and I have observed them when they were plugged solid full of snow.

Q. The device operated satisfactorily, did it, when they were plugged full of snow?

A. Certainly not. [1943]

Q. In the normal operation were they plugged?

A. No.

Q. What percentage of the time of operation of the device like that were either the vent 101 or the unnumbered vent plugged?

A. We never at any time had any 10-square inch openings in this chamber, so I am in some difficulty to visualize just what condition we are getting at.

Q. You just referred to these vents 101 and the unnumbered vents as being plugged sometimes or obstructed?

A. Yes.

Q. What percentage of the time in normal operation were they plugged?

A. It would depend entirely upon the type of operation, and since most of my early work with that machine was experimental, I don't know that my opinion would mean anything. Sometimes we ran an experiment and they plugged up, and sometimes we ran an experiment and they did not plug up.

Q. Is your answer that with respect to the operations of the apparatus of Fig. 5 since you observed it, you are unable to state what percentage of the time the vents 101 and the unnumbered vent you have referred to were plugged?

A. Yes; I am unable to state that.

(Testimony of Charles L. Jones)

Q. You are able to state, however, that when you attempted to perform triple point operations in the apparatus of the type illustrated in Fig. 5 the gas return vents [1944] plugged more frequently than when the snowing operations occurred, aren't you?

A. No; I am not. On the contrary, the triple point operation led to much less stoppage of the gas return line than the snow operation.

Q. Now, you referred to a number of items in response to questions of your counsel, some 14 of them, I believe, items of knowledge which you stated a man skilled in the art would have in 1928, May; one of those was with respect to the pressure in the pressing chamber 60 before pressing. It is a fact, is it not, Doctor, that in May, 1928 a man skilled in the art knew that he had to maintain and had maintained at a substantially atmospheric pressure in the pressing chamber of the Martin press where the snow was made in one device and then placed in the press for pressing?

A. I don't know of any Martin press where the snow was made in one device and pressed, as you state, before pressing, as of May, 1928. I never heard of the device at that time.

Q. Well, it is your testimony, isn't it, that it was known by a man skilled in the art that before pressing solidified carbon dioxide in a press he should reduce the pressure to atmospheric?

A. The common knowledge was in reference to the open press of the snow tank practice; and it was the invariable practice to press the snow in the open air at atmospheric pressure. [1945]

(Testimony of Charles L. Jones)

Q. And there was no substantial or important difference in the pressure that existed in those presses prior to May, 1928 and the pressure which exists in accordance with the description of the patent in suit in its pressing chambers?

A. I have no knowledge of any presses prior to May, 1928.

Q. By the Court: Prior to May, 1928?

A. May, 1928.

Q. By Mr. Foster: Do you find described in the patent in suit any method by which, after the block is ejected from the pressing apparatus and before the liquid inlet is opened into the chamber 50, gas may be returned from the gas holder 12 to build up a pressure in the chamber 50? A. Yes.

Q. Or above, greater than two pounds?

A. No.

Q. You have referred to the teaching of the patent as to the extent of compression, degree of compression of the blocks in the pressing chamber of the patent, and stated that the valve in the line connecting the high-pressure line 90 to the vessel 66 could be opened to carry out that pressing operation. Do you find any teaching in the patent that the valve between the vessel 66 and the high-pressure line 90 should be fully opened or partially opened? [1946]

A. Reading from the specification, line 66, page 2:

"After a desired amount of solidified gas has accumulated in the compression chamber, the upper part of pressure tank 68 is connected to the low pressure pipe 91 and the upper part of pressure tank 66 is connected to the high pressure pipe 90."

(Testimony of Charles L. Jones)

Q. Do you understand from that that such connection is made by the manipulation of a valve unnumbered between the vessel 66 and the line 90? A. I do.

Q. Does that sentence you have just read instruct you to open it wide open, or never to open it wide open?

A. That sentence says nothing except to connect it.

Q. My question is, what does the sentence teach you? Does it teach you that you must open that valve completely?

A. The sentence teaches me to connect the high pressure pipe 90 with the vessel 66.

Q. By opening a valve between the two of them?

A. By opening a valve between the two of them.

Q. Does the sentence teach you that you must open the valve wide open, so that the full pressure in the line 90 is applied to the piston in the vessel 66?

A. I don't see how it has to teach me that. I don't think I could avoid it.

Q. If you open the valve partially, would there be less pressure upon the piston in the vessel 66 than if you [1947] open it completely? A. No.

Q. The same pressure? A. Yes.

Q. Does the patent teach you that there must be 1200 pounds per square inch in that line 90?

A. No, the patent teaches that gas is fed through the compressor, shows it is returned to the condenser, and states that the pressure would be about 1200 pounds.

Q. Do you understand from that that the object of the patent, as stated in the patent, will not succeed if the pressure in the line 90 is substantially less than 1200 pounds?

A. I don't understand anything about it.

(Testimony of Charles L. Jones)

Mr. Caughey: We object to that. Which object do you have reference to? There are a number of objects.

Mr. Foster: All of the objects.

The Court: Will you read the question?

(Question read by the reporter.)

A. No, I don't understand that.

Q. By Mr. Foster: As a matter of fact, it is your understanding from reading this patent that the pressure in line 90 may vary between very wide limits, and yet the apparatus operates successfully? A. No.

Q. That is true, isn't it? [1948] A. No.

Q. Between what limits may it vary?

A. Are you asking me as to one skilled in the art, or merely for the wording of the patent?

Q. Let me ask you first, in accordance with the teaching of the patent, what are the lower and upper limits of the pressure in line 90?

A. In order to permit the operation of this apparatus of the patent, page 1, line 15, second column—

Q. Just give me the limits. A. It states:

"The condenser comprises a receptacle 24, in which a circulation of cooling water is maintained in the usual manner, and a pipe coil 25. Here the compressed gas is liquefied."

To anyone in the carbon dioxide industry that means that the condenser is cooled with the available cooling water, and the condenser pressure is as much as is necessary to liquefy the carbon dioxide.

Q. What does the patent state as to the upper and lower limits of the pressure in line 90?

A. To one skilled in the art—

(Testimony of Charles L. Jones)

Q. What does the patent state, Doctor?

A. The patent does not state an upper and lower limit. It gives only one example: 1200 pounds per square inch.

Q. But as a man skilled in the art, would he know that [1949] that pressure could be varied, and the apparatus still operate?

A. Within the normal limits of water condenser operation in different plants.

Q. With respect to these items of knowledge, which you say were possessed by a man skilled in the art, in May, 1928, I understand, to summarize, that it is your testimony that a man skilled in this art, in May, 1928, either knew or could readily determine for himself from the literature, the triple point conditions for forming solid CO₂?

A. That is correct.

Q. He likewise knew, or could readily have determined that, from the literature of 1925, before June, couldn't be?

A. Yes.

Q. A second item that a man, in May, 1928, skilled in this art, knew or could have easily determined from the literature, is the thickness of the walls of the chamber, and the different parts of the apparatus?

A. No, I did not so testify, and without some disclosure before him, and decision as to what method or form to use, and what the maximum pressure would be, he could not possibly specify the thickness of the chamber.

Q. Those factors you have just mentioned were known to, or readily determinable from the literature by a man skilled in the art, in May, 1928?

A. I only stated that the man skilled in the art, [1950] after he had knowledge of the Slate patent, and had

(Testimony of Charles L. Jones)

decided which cycle of solidification he would employ, could then go to a press manufacturer and tell him the desired working pressure, and get this equipment that would work.

Q. My question is this, Doctor: A man skilled in the art could have readily determined for himself, or knew as well, that without consulting the literature in 1925, before June, the kind of solid CO₂ he wished to make?

A. No.

Q. Do you mean that some time between January, 1925, and May, 1928, there was rendered available to the man skilled in the art the conditions under which triple point carbon dioxide solid could be made?

A. On the contrary, I merely mean that the numerous facts to be known about the properties of solid carbon dioxide, and snow ice, and triple point ice, have remained so much unsettled that as recently as the last couple of years the situation as to whether one should make snow ice part of the year, and triple point the balance of the year, or make triple point ice all the time, remains an unsettled question to the present day.

The Court: I don't think that answers the question.

A. I did not understand his question.

The Court: Do you want the question read?

A. Please.

(Question read by the reporter.) [1951]

The Court: Not the desirability of making it, but how it could be made?

A. Yes.

Q. By Mr. Foster: That same information was available before January 1, 1925, wasn't it?

A. No, the information was not available.

(Testimony of Charles L. Jones)

Q. As to the conditions under which triple point ice could be made from carbon dioxide?

A. The fundamental physical constants were known for many years prior to 1925. That is not the information one would need to attempt such a process, because the triple point solid carbon dioxide, for example, was known to me for many years prior to 1928, but the idea of taking this product of Slate, '681, which was a triple point solid, and combining that with a press to get a commercial product certainly never occurred to me until the fall of 1928.

Q. That was not my question.

A. I can't answer the question as phrased. Perhaps you can rephrase it.

Q. The pressure and temperature conditions under which triple point ice may be made from carbon dioxide were all well known long prior to January 1, 1925; that is correct, isn't it?

Mr. Morris: May I say that the question is vague and indefinite?

The Court: It does not seem to me to be so. It seems [1952] to me that the witness is dodging the answer with something else. It seems to me this question is very clear.

Mr. Morris: It seems to be the question is whether in a laboratory, commercially, or something of that sort.

A. I will answer yes.

Mr. Foster: Let me ask this general question: You testified to several items of knowledge with respect to the manufacture of solid carbon dioxide and its compression into blocks in accordance with the patent in suit, which item a man skilled in the art, as of May, 1928, either knew

(Testimony of Charles L. Jones)

or could readily determine from the literature, in response to questions from counsel? A. That is correct.

Q. Are there any of those items which a man skilled in the art, as of 1925, prior to June, did not know just as well, or could not just as readily have determined from the literature?

Mr. Caughey: If your Honor please, that is asking him a compound question, in my opinion. There are 13 different things which have been gone over.

The Court: All he has to do is to answer the question asked as to which ones were known. I think it is clear.

Mr. Caughey: If he can remember.

The Court: He knows this like a book. He is an expert. He knows exactly which ones. Even I know most of them. [1953] A. No.

Q. The patent in suit—

The Court: Let us see that the answer is clear. Maybe my interjection of something has made the answer not clear. Read the question, and see what the answer "No" means.

(Question read by the reporter.) -

The Court: By your answer "No," you mean there are none of those items?

A. I am very sorry. I should have asked the question be read. My answer is yes. There are items I wouldn't know back there.

The Court: I thought your answer was mistaken. It is my fault. I possibly should have sustained Mr. Caughey's objection A. No, it is my fault.

(Short recess.)

(Testimony of Charles L. Jones)

Q. By Mr. Foster: Please enumerate the items you had in mind in your last answer.

The Court: You said there were items which were available to those skilled in the art, in 1928, that were not available on June 1, 1925. The question is, what are those items about which you testified on direct?

A. The pressing pressure of the pressing platen or block. Something was known about that in 1928, that was not available in 1925. [1954]

The Court: I am afraid I don't understand that. Will you explain just what you mean?

A. In 1925 I have no knowledge—what date in 1925? Pardon me.

Q. By Mr. Foster: Prior to June.

A. June, 1925. I am in difficulty with that, because my knowledge of the solid CO₂ industry is all hearsay back of that 1925 time. So far as I know, very little was known about how to press and make a commercially dense product in 1925.

Q. In your last answer, what was the first item of pressing?

A. Pressing pressure; hydraulic pressure.

Q. You said something was known in 1928 that was not known prior to June, 1925. What was it?

A. The hydraulic pressure necessary to produce a commercial block, and the manner in which that pressure should be applied.

Q. Have you finished with that item? A. Yes.

Q. What other items?

A. The reduction of the product to atmospheric pressure prior to pressing; and there are a number of other items on which I have no answer, because I have no

(Testimony of Charles L. Jones)

knowledge as to what was known in 1925. I have a rather more definite idea of what was known in 1928.

Q. From your knowledge of the literature, including [1955] the prior art, to which you testified on direct examination, please state any other items that you do not know were as well known, or were available to a man skilled in the art, prior to June, 1925, as to a man skilled in the art in May, 1928?

Mr. Caughey: I object to that as indefinite, and not proper cross examination.

The Court: I don't think so.

Mr. Caughey: Candidly, I don't understand the question. I would like to have it read.

The Court: Maybe I am wrong. I was wrong once before. Let us hear the question.

(Question read by the reporter.)

The Court: I think he understands the question.

A. Yes; the making of triple point solid was taught in the Slate patent which has been discussed here, and which issued in 1925. I believe that is all.

Q. By Mr. Foster: That is your best answer to that question? A. Yes.

Mr. Foster: Does the court have any questions on this subject?

The Court: No. The Slate application was originally filed January 10, 1924.

Q. By Mr. Foster: The patent in suit illustrates and describes two different forms of apparatus. Both of [1956] those forms are commercially practicable?

A. That is true.

Q. Having in mind—

The Court: Let us make that clear for the record; just what you mean by those two forms.

Mr. Foster: One form of apparatus stated and described in the patent in suit is that illustrated in Figs. 1, 2 and 3; is that correct?

The Court: The horizontal press?

Mr. Foster: The horizontal type. Figures 2 and 3.

Q. With that qualification, your answer is yes?

A. Yes.

Q. The other form of apparatus is that illustrated in Figs. 5 and 6 of the patent in suit?

A. That is correct.

Q. And both of those two forms of apparatus are to be used with the piping shown in Fig. 1, in accordance with the statements of the patent?

A. That is correct.

The Court: I thought it might not be clear in the record what was meant by form.

Mr. Foster: That is true.

The Court: Knowing that you were referring to the difference between triple point and snow, I thought we had better clear it up.

Mr. Foster: Thank you. [1957]

Q. Having in mind the knowledge possessed by a man skilled in this art prior to June, 1925, and having in mind the disclosures of the prior patents in Defendants' Exhibit EE, to which you have referred on direct examination, is it your opinion that either of the forms of apparatus of the patent in suit involved anything *knew*?

Mr. Caughey: That is objected to. This is a combination patent. Furthermore, that is for the court to determine.

(Testimony of Charles L. Jones)

Mr. Foster: I am not asking about the claims, your Honor. I am avoiding that completely, in deference to your Honor's statement that you preferred we not go into those claims. This man on the stand has testified as an expert in respect to the prior art, and this apparatus. [1958]

* * * * *

Mr. Morris: I am speaking by the book, as I see it. I don't care personally whether he answers it or doesn't answer it; but the question is: What is there new here? The answer is it is new, unless the defendants have shown in their pleadings, or some prior art patent or publication or prior use the same combination, functioning in the same way, to produce the same result.

The Court: Let me stop you right there. I think that is beautifully stated and has clarified my mind. Now, he answers the question, and if the defendants by their pleadings and their proof have not disproved that, then I am in a position to understand what the plaintiff's contention is. Do you see what I mean?

Mr. Morris: Oh, yes.

The Court: He can't make a case for the defendants; he can't make a case for the plaintiffs; but we have got to act within the scope of the pleadings technically, under the law. His answer may put the defendants out in the cold. I don't know what his answer is going to be.

Mr. Morris: I am only on my feet at the moment because I thought there was some confusion in my mind; I thought that he was asking this witness to usurp your Honor's function. [1962] There is no reason in the world why your Honor should not at any time ask the expert anything you want you think would be helpful in solving

(Testimony of Charles L. Jones)

the problem. On that basis I withdraw any and all objections. On the other hand, you were asking me what I thought the law is, and my thought is that it is as I have spoken.

The Court: I think that is very well stated.

Mr. Foster: I would be very pleased, if the court is willing, for the court to state the question.

The Court: I think you all understand it now. Let the witness answer.

A. The question is now, what was new and patentable? What is the question?

The Court: What do you consider to be new and in the nature of an invention about this patent in suit, as you understand the prior art which has been discussed here, and as you understand the information and knowledge to which the man skilled in the art had access at that time. That is the question. Do you understand it?

A. Yes.

Mr. Foster: Yes. Thank you.

A. As to structural elements in the apparatus of Fig. 5, I see two elements there peculiar to its use with carbon dioxide: The double jacket, 102, and the dividing or separating members 110. But with those minor exceptions I see no novel mechanical element in the apparatus itself [1963] whatsoever.

The Court: As I understand, this 110, that is a cross-like metallic member which is set on this head 107, which may be removed at will, but which avoids the necessity of sawing the block? A. Yes.

The Court: That, as I understand it, goes both ways?

A. Yes, and which is not even used in the current art. As to the diagram in Fig. 1, there are several struc-

(Testimony of Charles L. Jones)

tural elements which I believe have novelty. One is the use of the diaphragm valve and exhauster in connection with the solidifying apparatus, and which, without discussing the sufficiency of what the specification says, shows an apparatus which works to produce what, so far as I know, is a new and useful result; that is, it automatically took care of the regulation of the pressure in the chamber, and of the functions of a vent to atmosphere.

Q. By Mr. Foster: Do you mean to atmosphere, or to atmospheric pressure?

A. I said it took care of the function of a vent to atmosphere. The pressure actuating cylinders 66, 68, 77 and 75 were a novel way of operating such a press. I think there was probably some invention there; at least that saved the expense of a complete hydraulic pump system.

The Court: It made it substantially automatic?

A. It made it cheaper to construct. Returning then to [1964] Figure 5—

Q. By Mr. Foster: Had you finished with Fig. 1?

A. Yes. Returning then to Figure 5, this apparatus in practical use gave a result which I think no one could have anticipated, and that is, it eliminated for the first time the operation of tamping, or its equivalent, whether performed by hand, or by stirs, or scrapers, or blades, or by whatever mechanical means.

It had always previously been thought necessary to make this material in one press, and then in some way or other to form it in another press.

I will say that some of the early work in the Dry Ice Corporation was never known to me until testified to in this suit; that is, the machines L, O and P, but even in

(Testimony of Charles L. Jones)

those machines we have the idea of the reciprocating fixed stroke plunger, which is essentially a tamping mechanism, which takes small charges of solids and pushes them around, so to speak, to get them into a configuration where they will end up in the shape of a block.

Why it should have escaped the art for so long that apparently all you had to do was to take Slate's clear disclosure in 1925 of how to take liquid and make triple point crystals out of it; all you had to do was to take that and put it in a suitable apparatus, boil the liquid down; you had a mass of crystals, and did not have to shovel it or handle it from here to there, or do anything except press it [1965] and keep it, as far as possible, out of contact with the air,—I say why that did not occur to someone earlier than the time of the construction of this machine, and even, for that matter; when the patentees themselves had the same ideas a couple of years earlier, why they didn't sooner proceed at once to this vertical design, eliminating the scrapers and cutters, and so forth, which they themselves, like the rest of the art, went through, to lead to their final design, I don't know. [1966] I only know that when my interest in the art was at its highest and I had to do something to get a practical device, Cole and McLaren had constructed this machine, and that when we took the machine and used it in the way described that we not only eliminated our tamping operation, but we got considerable savings in labor cost, space, and improved yields of product; and we got a higher density product. I think one thing that is of some interest, although I do not believe that it is really original with the inventors, although it is the first appearance of that idea in this art, is this change of size;

(Testimony of Charles L. Jones)

that is, previously a 10-inch cake was pressed, which has a proportion of the height and diameter of one to one and therefore had on a 10-inch cake 400 square inches of mold area with 100 square inches pressing downward; and Cole and McLaren—for what reasons I do not know—had already constructed this machine and it was $20 \times 20 \times 10$, which changed that proportion as soon as the divider member 110, which spoils that picture and puts a lot of extra mold wall surface in there. When that was taken away the machine showed a change to just half that ratio, that is, it took away half the mold wall friction and gave a proportion equal to—well, a ratio of height to diameter of 5/10th to 1.

Now, I don't think that is Cole and McLaren's invention. I mean that is well known in the ceramic art long before Cole and McLaren came along; but their appearance in the industry at this particular time with this machine happens to have [1967] that incidental benefit attached to the rest of it.

To sum up, to my mind the soul of the invention is the elimination of the tamping step and the discovery that it is possible to short-circuit that, and without either a reciprocating plunger or a scraper, stirrer or other device to change the configuration of the snow, that you can deposit a mass of crystals, press them right there where they have been deposited, take them out and have a finished product. That is all I can see to it.

Q. By Mr. Foster: Have you finished your answer to the last question? A. Yes.

Q. Now, what is there in accordance with your understanding of the prior art that was new and in the nature of an invention as regards the process described in

(Testimony of Charles L. Jones)

the patent in suit, quite irrespective of the forms of apparatus described?

A. The combination of the exhauster 81 and the diaphragm valve 84.

I am going to give in this answer strictly a personal reaction, not endeavoring to go into the detail of who may first have used a scraper of a certain shape, or whether one man had a scraper that might have been curved in a certain way and someone else might have used a rabble arm, or whether this man made a product with a vertical chamber twice as high as his compression chamber and the other man may have had a [1968] compression chamber and a snow chamber of some different shape attached to it.

To me the only idea that I see in Figure 1 which appealed to me as a definite contribution, aside from those mechanical variations, is the exhauster 81 and the diaphragm 84 as they actually function when placed in use.

Mr. Foster: May I have the last question read so that the witness may see if this completes his answer to it, if the court please?

The Witness: Yes.

The Court: I think he understands it. He has answered the same thing twice that, as I understand it, is what he considers to be the contribution of Cole and McLaren so far as the process or the method is concerned.

Q. By Mr. Foster: You had finished your answer?

A. Yes.

Mr. Foster: The reporter can't get the nod.

The Witness: What?

The Court: He said, "Yes."

(Testimony of Charles L. Jones)

Mr. Foster: The reporter can't get the nod.

A. Yes.

The Court: He said, "Yes", audibly.

Q. By Mr. Foster: It is not your opinion that it was new with the Cole and McLaren or in the nature of an invention by them to have the solidification of carbon dioxide and the compression of the carbon dioxide in the same chamber? [1969]

A. Yes; it is my opinion that Cole and McLaren did invent just that. The question can't be answered without considering a definition, though, of terms when you say "compressed", that is, the machine, say of—well, Exhibit L, as it was described here, undoubtedly makes solid carbon dioxide, or Exhibit P—I guess I am confused on that—undoubtedly deposits carbon dioxide and compacts it, and it undoubtedly does it in the same enclosure; but it, to my mind, utterly fails to accomplish this result and the type of pressing is still the old idea of the school of thought of tamping that material in there. It is not in any way, shape or form the commercial result that is attained by this Figure 5 device. It has a good deal more in common with the Figure 2 device, which is not, to my mind, the outstanding contribution of the inventors to the art. [1970]

* * * * *

Mr. Morris: It is non-exclusive sub-license agreement dated July 1, 1934 from the International Carbonic, Inc., the original Delaware corporation of that name, to Dry Ice, Inc., subject to the rights of Mathieson, Alkali Works, Inc., under an agreement between it and International Carbonic Engineering Company. [1977]

* * * * *

CHARLES L. JONES,

recalled.

Cross Examination,

resumed.

Q. By Mr. Foster: Referring, Dr. Jones, to Fig. 1 of the patent in suit and to the cylinders 66, 68, 77, and 75, the patent states that the pistons in those cylinders are operated by carbon dioxide gas pressure, is that correct?

A. No. I do not believe there is any statement in the specification that there is a piston in these cylinders. The dotted lines represent the upper surface of water or some other sealing fluid.

Q. The patent states that the pistons 63 and 72—

A. Yes.

Q. —for the press are actuated by the pressure of carbon dioxide gas in the cylinders 66, 68, 77, and 75.

A. That is correct. The pistons 63 and 72, however, are not in the cylinders 66, 68, and so forth.

Q. No; I understand. And then, by that arrangement, utilizing the carbon dioxide gas pressure, that the apparatus as illustrated in Fig. 1 saves the expense of an hydraulic [1980] pump system, is that it?

A. That is correct.

Q. In your experience prior to May, 1928 in the carbon dioxide industry had you seen the pressure of carbon dioxide gas employed for actuating pistons?

A. Not in this manner. I had seen an automobile jack marketed which used carbon dioxide pressure as an actuating means.

Q. That was prior to 1925, wasn't it?

A. It was.

(Testimony of Charles L. Jones)

Q. Now, you have referred to a ratio in your testimony, HD ratio? A. Yes.

Q. Would you enlighten me as to what is meant by that?

A. By "H" is meant the height or depth of the article being pressed normal to the pressing surface; and by "D" is meant its diameter if it is cylindrical, or its equivalent diameter if it is of some other shape.

Q. And in order to secure a block of carbon dioxide of commercial density what must that ratio be; what must be the value of that HD ratio?

A. There is no critical value for that. It is merely a relationship between the pressure employed, time during which the block is held in the press, and the ratio HD. The higher the ratio HD, the greater the pressure required to overcome mold wall friction; or, alternatively, the longer [1981] the time the article must be held for compression to be effective through a greater depth.

Q. Are any of those factors described in the patent in suit? A. They are not.

Q. It is true that in order to produce a block of commercial density in the apparatus of Fig. 5 of the patent in suit the chamber should be so dimensioned that this HD ratio is less than one?

A. No. Presses on this same pattern have been constructed and used in which the chamber is 10 x 10, instead of 20 x 20 inches, and in which the HD ratio is one to one, instead of one-half to one. I may say that I did not state that that was the invention of Cole and McLaren. It is a well-known relationship in the ceramic art.

Q. This HD relationship? A. Yes.

(Testimony of Charles L. Jones)

Q. Do I understand from your last answer that the apparatus of the patent in suit can be made of different dimensions by anyone skilled in the art to provide any size block desired? A. It may be so used.

Q. Without departing from the teaching of the patent?

A. Without departing from the teaching of the patent.

Q. Now, the same thing is true of the prior art patents, isn't it; the apparatus there illustrated may be made of [1982] different dimensions by one skilled in the art?

A. I would not think the analogy is correct.

Q. Well, would you explain why you think it is not?

A. We know we have—

Q. Pardon me, I think you have answered.

A. Pardon me.

Q. Would you explain your reason for stating that one skilled in the art could make the apparatus of the patent in suit of the various dimensions to make different sized blocks and could not so alter the dimensions of the apparatus of the prior art? A. Merely—

Mr. Caughey: May I suggest that I think that question is all-inclusive and is indefinite, lumping the prior art. If the witness can answer, but I think that is quite a question.

The Court: Well, I think that is true, but I think that the witness knows the various devices to which we have been referring and he can distinguish between them as he wishes, or among them as he wishes.

A. No; I believe there is no generalization which will answer the question. To illustrate, while the patentee of this patent does not state a size limit, it would be obviously ridiculous to construct a hydraulic system with pistons and pressing plungers to make an article, let us

(Testimony of Charles L. Jones)

say, one-half-inch in diameter. Such a device, from a hydraulic [1983] point of view, would be a model or toy. It would be equally ridiculous to take the device, for example, of Julius and undertake to make an apparatus 20 inches in diameter, construct a closure, and then lift a steel chamber of that size with its contents from the balance of an apparatus in order to remove the product contained therein. So I believe the question can only be answered with regard to a comparison of two specific devices. [1984]

Q. Have you completed? A. Yes.

Q. Is that the best answer you can give to my question? A. Yes.

Q. You have referred to commercial density of these compressed blocks of carbon dioxide. What is that commercial density? Will you define what is meant by it?

A. I should say commercial density of any product is the density demanded or accepted by the trade in the product, and in this case that density has changed, prior to the introduction of the Fig. 5 type of press, and including the major portion of the time during which the Fig. 2 style was used, commercial density was approximately 40 pounds per standard 10-inch block, and since that time commercial density has been approximately 50 pounds per 10-inch block.

Q. The apparatus described and illustrated in the patent in suit is adapted for producing carbon dioxide blocks of different densities, is it not?

Mr. Caughey: Which figure are you referring to?

(Testimony of Charles L. Jones)

Mr. Foster: The apparatus, all of it, in this patent.

A. I will answer that any device which may be used to solidify carbon dioxide may be used to produce a material of variable density.

Q. In compressed block form, that is correct, isn't it?

A. Compressed or uncompressed.

Q. The patent in suit states nothing about the density [1985] of the block to be formed, in accordance with the teachings of the patent, does it?

A. It states only the determining factor.

Q. It gives no numerical value of the density of the compressed block, does it? A. No.

Q. Is the density of the block which is produced by any of the apparatus described and illustrated in the patent in suit governed to any extent by the amount of snow that is made in the apparatus during each cycle?

A. Yes.

Q. Do you mean by that that if there is more snow in one operation than in another the block will be denser in the former case than in the latter case? A. No.

Q. Explain what you mean.

A. The ratio HD varies with the depth of the block made, so that not only with the apparatus of the patent in suit, but with any other apparatus, all one needs to do to obtain high density is to make a thin wafer or slab of material, instead of a deeper slab.

Q. And the patent in suit is silent as to the influence had by the amount of snow fed into the chamber upon the density of the block; that is true, isn't it?

A. No.

(Testimony of Charles L. Jones)

Q. Will you point out, in the patent in suit, any [1986] statement teaching a man skilled in the art of that factor?

A. I couldn't do that. I can only point to Figure 7 of the patent, and the block 111.

Q. My question—

A. Which speaks, to anyone skilled in the art, very clearly that the patentees had in mind the preparation of four approximately cubical commercial blocks, and they make no statement in the specification about it.

Q. I think you did not understand my question. You have stated that the amount of snow which is fed in the apparatus illustrated and described in this patent governs the density of the final compressed block?

A. That is correct.

Q. Is there any statement in the patent to that effect?

A. No.

Q. You stated on direct examination that at the Elizabeth plant you had built several devices of the type of Fig. 5 of the patent in suit, and that they varied from each other? A. No.

Q. Did you build several pieces of apparatus of the type illustrated in Fig. 5?

A. We did not build any equipment at the Elizabeth plant. We purchased devices of this general type, and varying from it in detail to the number of three pieces.

The Court: Let us straighten that out for the record. [1987] What you mean is that you did not actually build them, but caused them to be built, and that the specifications of each varied somewhat? A. That's right.

Q. By Mr. Foster: And they varied in dimensions?

A. No.

(Testimony of Charles L. Jones)

The Court: You mean by that, in relation between the size of the chamber, the pressing chamber, or inlet and outlet pipes, or vents, and so forth.

Mr. Foster: Yes, my question contemplated this: Were all of the dimensions of all three of these devices identical?

A. No, the essential dimension of the chamber itself, internally, was the same. The differences lay in the method of constructing a strong pressing chamber; that is, one was built that was fabricated from small welded castings; another was of cast steel of one composition in two pieces; another was cast steel of a different composition in one piece: so that the experiments related to the strength and method of assembling the structure, and not to its function or internal size.

Q. I wish to refer to the prior art patents. Do you have your copies before you? A. I do.

Q. And direct some questions to the changes which are necessary in order to permit the apparatus disclosed in [1988] these prior patents to make blocks of solid carbon dioxide. I wish you, in answering the questions, to overlook the necessity of making changes in dimensions in the apparatus; I wish you to overlook any changes necessary to secure varying degrees of density in the product; I wish you to overlook any changes necessary in dimensions to secure a commercial size of block; and I wish you to overlook any changes that are necessary to return gas to the system, instead of permitting it to escape to atmosphere, and confine your answers to other changes that are necessary. [1989]

(Testimony of Charles L. Jones)

Q. By Mr. Foster: Referring to the Cartier patent, tab 1 of Defendants' Exhibit EE, what changes are necessary to adapt it for the formation of solid carbon dioxide and its compression into blocks?

A. In answering I am virtually disregarding the invention itself. [1990]

The Court: Your counsel on redirect examination will have a right to clear that up. It seems to me you can answer. You would require an inlet, wouldn't you?

A. Yes, you would require an inlet; you would require dispensing with the perforated platen faces. That is all.

Q. By Mr. Foster: Now, inlets of a kind which would operate satisfactorily upon the Cartier device were known prior to 1925 in the carbon dioxide industry, that is true, is it not? A. As an element, yes.

Q. It would also be obvious to a man skilled in the art, before 1925, that perforations such as those shown on the platens of the Cartier patent would become plugged with solid carbon dioxide, as it was formed?

A. Yes.

Q. And it would be obvious to such a man skilled in the art that if these openings were retained you would encounter the difficulties you have mentioned?

A. Yes.

The Witness: Your Honor, is it proper for me to add to that answer that it would not be obvious that it would be unnecessary to tamp that material or otherwise handle it in order to—or is that beyond the question?

The Court: No; you can bring that out on redirect examination. He is probably after a particular thing to clarify it in the record, and that brings in another element [1991] that the question is not directed to.

(Testimony of Charles L. Jones)

The Witness: I should not go on to say what is not obvious? [1992]

The Court: No. When it comes to redirect examination he will give you a chance to make those explanations.

Q. By Mr. Foster: Is it your statement, Dr. Jones, that the perforations in the two platens of the Cartier patent would not be of such size and shape as to present no serious obstacle to the use of the apparatus to compress solid carbon dioxide? A. No.

Q. Are you prepared to state that after the apparatus of the Cartier patent were used once or twice to compress solid carbon dioxide the openings in the platens would not be clogged with snow so that they acted as solid platens?

The Court: But with more friction? A. Yes.

The Court: But with more friction than if they were solid?

A. Yes; that is correct. Friction would be increased and it would be somewhat more difficult to break the solid block from the solid in the pore than it is to break it from an uninterrupted surface.

Q. By Mr. Foster: But a perfectly feasible, practical operation could be carried on in that manner with the apparatus merely clogged with solid CO₂; that is true, isn't it?

A. Feasible, but not such as to satisfy a practical man in a carbon dioxide plant. [1993]

Q. Now, will you direct your attention to the Sailor patent, 467,783, tab 2 of Defendants' Exhibit EE? What changes would be necessary in order to adapt this apparatus to the production of solid carbon dioxide and its compression into a block? A. An inlet.

(Testimony of Charles L. Jones)

Q. What else?

A. I assume the outlet need not be mentioned. We are neglecting the outlet there.

Q. Well, to neglect the—

A. To save time, in all of these questions where an outlet is missing or wrong in some way, we do not even mention it. It is one of the items we are excluding from consideration, provision for return gas.

Q. We are excluding from—

The Court: Well, no, no. You are excluding anything that is designed to save gas by returning it to the system so that it may be used again, instead of dissipating it to the atmosphere. A. Oh.

The Court: Manifestly that does not include providing an outlet, because you can't operate the device. Now, in this case you had to have an inlet, you had to have a closure head, and you had to have an outlet.

A. Correct.

Q. Didn't you? [1994]

A. Yes; an inlet, an outlet, a closure head, and a closure for the end of the pressing chamber opposite the closure head.

Q. By Mr. Foster: Now, Doctor Jones, you do not need to change this piston D or the piston H in any way if you are not going to return the gas to the system, do you? A. No.

Q. So that all you would have to do, accepting the premise that has been stated from my question, to adapt the apparatus of the Sailor patent for the solidification and compression of carbon dioxide therein is to provide it with a liquid inlet?

A. If I accepted that premise, that is correct.

(Testimony of Charles L. Jones)

Q. Now refer to Holden, patent 876,352. What changes would it be necessary to make in that apparatus to adapt it for the formation of solid carbon dioxide and its compression into blocks?

A. A proper inlet, the elimination of the perforated cylinder; that is all.

Q. And your testimony with respect to the perforations in that cylinder is the same as it was with respect to the perforations in the piston of Cartier, isn't it?

A. No; it is not.

Q. Well, is it your opinion, Doctor, that these perforations would prevent the operation of this apparatus to compress and solidify carbon dioxide? [1995]

A. No.

Q. It would be perfectly usable with those perforations?

A. In an impractical way; yes.

Q. It would be perfectly practical in the sense that you could produce and compress a block of carbon dioxide; that is true, isn't it?

A. As a demonstration; yes.

Q. You would save some power if you eliminated those perforations, is that correct?

A. Yes; and you would eliminate other difficulties.

Q. Now would you refer to the Drummond patent and state what changes are necessary in the apparatus there disclosed to adapt it for solidifying and compressing into blocks carbon dioxide?

The Court: Eliminating the elements indicated in each of these questions?

Mr. Foster: Yes, your Honor.

A. A proper inlet, the elimination of the perforated pipes at G, and the perforations in the upper and lower platens; that is all.

(Testimony of Charles L. Jones)

Q. By Mr. Foster: And your testimony with respect to the perforations in the pistons E and F is the same as with respect to the perforations in the Cartier pistons, is that correct? A. No; it is not.

Q. If the perforations were retained in the pistons E [1996] and F, are you prepared to state that they would not clog up after one or two operations so that the pistons acted as solid pistons?

A. I would not be prepared to state anything about it without trying them in the practice. The difference—

Q. You have never tried them yourself?

A. The difference, on the face of the patent, lies in the size of the openings and their communication to a free space on the other side of the plunger. In the Cartier patent the openings, whatever their size, could readily plug and the solid plugging them would have no place to go. In the Drummond patent, on the other hand, we have holes which must be of considerable size for them to permit the passage of perforated pipes; and I believe such a hole would very likely extrude the solid, and might extrude the sticks or cylinders of solid through those openings, until at the close of the operation we might have no commercial product whatsoever left between our platens.

Q. Your answer is based entirely upon conjecture and not at all upon experience, is that true?

A. Oh, completely.

Q. Now would you refer to the Gaylord patent, tab 6 of Defendants' Exhibit EE? You stated on your direct examination that this apparatus could not be vented during pressing. Will you state why it could not, in your opinion?

A. It could be vented during pressing very readily by [1997] providing a proper structural vent.

(Testimony of Charles L. Jones)

Q. You do not believe that the closure head 13 could be moved to permit the escape of gas from the interior of the mold during the pressing operation?

The Court: In other words, you ask him why you can't vent gases by breaking the mold while pressing?

Mr. Foster: Yes.

A. On the contrary, I believe that you could. I believe that you might very possibly be able to move the tail block 22 and possibly by rotating it you might accomplish that purpose. However, there is no disclosure in the patent to do any such thing.

Q. Do you mean by that last statement there is no disclosure in the Gaylord patent that gas may be vented by opening that closure head 13?

A. No. I only mean there is no disclosure in the patent that speaks to me of any method which would work if solid carbon dioxide were to be pressed in the device

Q. Now would you refer to the Stastney patent?

The Court: Wait just a minute, counsel.

Mr. Foster: Yes, sir.

The Court: Page 2, line 32, reads: "As will be hereafter set forth, the amber is forced within the mold through the perforations 20, while a slight releasing of the closure cap 13 will permit the escape of gases from the interior of the mold to the outside air." [1998]

A. May I amplify my answer with respect to that? In the device as shown pressing either amber or solid carbon dioxide, that description on page 2 is a perfectly feasible method for venting the gas that is initially in the chamber which is to be replaced by the amber; that is,

(22)

the tail block 13 may be left in a position out of contact with the mold until the mold is filled with amber and the

(Testimony of Charles L. Jones)

actual compression of the article commences. At that stage in the pressing of amber the necessity for clearing air from the mold is at an end. In solid carbon dioxide it is only beginning.

Q. Of course, while they are accumulating that amber under heat they have to let the gases evaporate to make it clear, and that is provided for during the accumulation, and during the time while the heating of the amber is going on within the mold so as to change the powdered amber into an integral mass there would be no pressure?

A. That is correct.

Mr. Foster: I think it might be helpful to the court to read one other portion of the patent.

Q. Would you read, Dr. Jones, from the patent, page 2, beginning line 128?

A. "It may be that these gases will all escape during the initial action of the plunger to force the amber within the molds, or it may be necessary to provide for the escaping of these gases until the final expansion of the amber. This [1999] depends entirely upon the nature of the amber and upon the article to be produced; but my process is not limited to the releasing of the gases at any particular time, and therefore such gases may be allowed to escape at any time, according to the judgment and experience of anyone who practices my process."

The Court: That is what I was getting at. Manifestly during the preliminaries he has got to provide for the escape of gas; that is a very simple thing. Now, during the pressing it would be a very simple thing to provide a vent, also, would it not?

(Testimony of Charles L. Jones)

A. The patentee does not provide a structural vent, but only says that he vents by relieving the gases around the tail block 22. If he has a type of amber which, on heating, continues to evolve some gas while it is being formed into an article, I take his patent to mean that he would then release the tail block and permit those gases to escape while the article was being formed. The practice is somewhat comparable to the lowering of the lower platen in the solid carbon dioxide industry; and if the question is directed to that type of practice as commonly practiced in the solid carbon dioxide art, I will be glad to reverse my answer and say, "Yes; he can relieve gases from the end of a block by lowering a platen or moving it away from the block."

Mr. Foster: Were there any other questions on this patent? [2000]

The Court: No.

Q. By Mr. Foster: Will you refer to the Stastney patent, 1,288,255, and, with the premise which I have previously stated, indicate those changes that are necessary to adapt this apparatus for the production of the solid carbon dioxide and its compression into a block?

A. The elimination of the packing rings 20—I can't answer the question.

Q. You can't point out any changes that are necessary, is that correct?

A. No; I can't point out any way in which by making changes the device can be made to produce a commercial block of solid CO₂. It is, perhaps, the one patent in the prior art that I can't do that with.

Q. Would you direct your attention to Defendants' Exhibit II, the model that is before you here?

A. Yes.

(Testimony of Charles L. Jones)

Q. What alterations are necessary in order to adapt that apparatus for the production of solid carbon dioxide and its compression into blocks?

The Court: On the premise previously indicated?

Mr. Foster: Yes.

A. You mean neglecting density?

Mr. Caughey: Just a second. I object to that question. This is not prior art, this particular model. I don't think it is material at all. [2001]

Mr. Foster: You have asked about it on direct examination.

The Court: I will permit it.

A. If you will pardon me, I am wrong and I will admit it. I had overlooked the fact that we are answering these questions leaving out of consideration a number of things, and one of those things is the changes necessary to produce a commercial density product. With that qualification, no changes are necessary in Stastney and it will produce a block without any alteration whatsoever.

Q. By Mr. Foster: And the same is true of the apparatus Defendants' Exhibit II? A. Certainly.

Q. By "commercial density" we are using the term as you defined it in your testimony today, is that correct?

A. That is correct.

The Court: I am glad you straightened that out. I thought that there was some confusion there.

A. Yes.

The Court: The proof of the pudding is always in the eating.

The Witness: That is right.

(Testimony of Charles L. Jones)

Q. By Mr. Foster: At page 1852 of the record, you stated in response to a question as follows:

"Q.—What would be your opinion as to whether or not continued blocks of ice would be made with that machine, Exhibit II? [2002]

"A.—If the plunger were mechanically actuated, and the closure head mechanically actuated, and the position of the vent to atmosphere either changed, or the gas vented through a normal leakage, in my opinion we would have not the Stastney device, but the Frick Press."

And by the Frick press were you referring to the construction that has been described during these proceedings as the defendants' Frick press?

Mr. Caughey: May your Honor please, I might state that this particular answer is an answer which the witness had an opportunity of reading over. He read his testimony and that particular answer is one he said is not properly—the answer was not properly transcribed, and prior to answering this, I think the witness should have an opportunity of stating what he intended to answer and what he actually did answer.

The Court: I think that is exactly what he did answer. I was a little surprised and was going to interrupt him, and then something else came up and I assumed that it would be straightened out. Now, read that again. As I remember it; that is exactly what he said, but he has, of course, a perfect right to explain that the answer did not carry what he intended it to carry by implication. Read it to me again.

Mr. Caughey: I am not saying as to that question or—

The Witness: The error is later in the statement, your Honor. [2003]

Mr. Caughey: I am not saying up to that point.

(Testimony of Charles L. Jones)

The Court: Yes. But I mean in connection with this testimony.

Mr. Caughey: Yes.

The Court: Let us have the questions and answers read so we get continuity, because there was something there that I intended to clear up and did not do it.

Mr. Foster: "Q.—What would be your opinion as to whether or not continued blocks of ice could be made with that machine, Exhibit II?

"A.—If the plunger were mechanically actuated, and the closure head mechanically actuated, and the position of the vent to atmosphere either changed, or the gas vented through a normal leakage, in my opinion we would have not the Stastney device, but the Frick press."

The Court: Now, the question is: In the answer to that question did you refer to what we described as one of the two defendants' devices, one being the Frick?

A. Yes; I did.

The Court: Now, read the other questions that followed immediately after that.

Mr. Foster: There is more to the answer.

The Court: Oh, I am sorry.

Mr. Foster: "And I believe it is operative, so long as the features of the Stastney patent are retained. However, I do not believe it could be designed to operate continuously [2004] making 10 x 10 x 10-inch blocks of solid CO₂ of commercial density."

The Witness: The correction—

Mr. Caughey: That is what we wish to correct.

The Witness: The sentence is incorrectly ended. What I said—may I have the record, please? What I said was the same words, except that the comma comes after

(Testimony of Charles L. Jones)

"Frick press" and the sentence ends with a period after the word "operative," starting a new sentence with the word "so," which changes the entire meaning of the latter portion of the answer.

The Court: I know there was something about that answer which caused me to wonder if it was clear and I did not stop at the time.

Mr. Foster: Might I have the reporter read the last statement of the witness, your Honor, to be sure?

The Court: Yes. Just one minute. Let me get this thing back in my mind. (After examining transcript): Well, I think the reporter got it exactly as you said it.

The Witness: The words are correct, but the punctuation.

The Court: I think he got it exactly as you said it. I wondered whether it was true at the time as you meant it. You want that to read, as I understand it, "If the plunger were mechanically actuated, and the closure head mechanically actuated, and the position of the vent to atmosphere either changed, or the gas vented through a normal leakage, in my opinion we would have not the Stastney device, but the Frick [2005] press (comma) and I believe it is operative (period). So long as the features of the Stastney patent are retained (comma) however, I do not believe it could be designed to operate continuously making 10 x 10 x 10-inch blocks of solid CO₂ of commercial density."

The Witness: Comma after "however."

The Court: Do you mean you want that last phrase to be hitched onto the last clause beginning "however"?

The Witness: The comma is after "however" instead of before. "So long as the features of the Stastney patent

(Testimony of Charles L. Jones)

are retained however, I do not believe it could be designed to operate.”

The Court: Oh, I see. [2006]

Q. I don't remember that this question was answered by the witness as to whether the Frick press referred to—

The Court: He said yes.

A. Yes.

Q. By Mr. Foster: Why, in your opinion, would it be necessary to change the position of the vent 20 of the Stastney apparatus?

A. Because in this device no other element can assist the vent pipe in removing gases from the block. There is no relief around the plunger; there is no relief around the closure head, which renders the position of the vent critical.

Q. Do I understand, in your opinion it would be necessary to change the location of the vent pipe 20 of the Stastney patent because it would become clogged with snow during the pressing operation?

A. That is correct. It is a matter of indifference whether the pipe is clogged with snow or not, so long as the flat surface of the closure head has against it a block of high density, which is held in valve seating position against the closure head of the inlet of the pipe 20.

Q. I don't understand. I had thought it was your opinion, expressed in your direct examination, that it was necessary to change the pipe 20 of the Stastney apparatus, its location, in order to permit the escape of gases from the chamber continuously during the pressing operation.

A. That is correct. [2007]

Q. For the reason that it would become clogged with solid CO₂?

A. I did not so state.

(Testimony of Charles L. Jones)

The Court: On direct examination he said the valve would become sealed, because the surface of the cylinder would be pressed against the block, and that would seal it, and there is no use having a valve that was inoperative, and it would be made inoperative by that automatic sealing process.

A. That may be clarified if I state I believe that the device, Defendants' II, would be inoperative in the sense I have mentioned if the outlet or vent pipe were taken off altogether, leaving nothing to clog at that point, but a hole in the side of the chamber. The valve sealing operation of the flat block pressing against the top of the cylinder would still operate to produce meltage of the product in the chamber at high pressure.

Q. That difficulty could be avoided in the Stastney patent if a man skilled in the art moved the vent line 20 away from the head 18 over to the side wall of the chamber, two or three inches from the end of 18?

A. Probably for a small block. The device is so completely sealed around both the plunger and the closure head, however, neither of which conditions is normal, it might be necessary to use more than one outlet pipe.

Q. My question is this:—Do you have the Stastney patent before you? [2008]

A. No, I don't.

Q. Will you please get it?

A. Yes.

Q. My question is this: If a man skilled in the art moved the vent line 20 of the Stastney apparatus away from the head 18, and put it in the side wall of the chamber, two or three inches below that head 18, he would eliminate this difficulty of the sealing of the line?

A. For a small block, probably.

Q. Do you mean he would not for a 10-inch by 10-inch by 10-inch block?

A. At high density, I doubt it.

(Testimony of Charles L. Jones)

Q. Do you have the patent in suit before you?

A. Yes.

Q. Will you turn to Fig. 1? A. Yes.

Q. Do you find the line 69 for removing gas from the pressing chamber? A. I do.

Q. And do you find that it is located immediately adjacent the end of the pressing chamber against which solid carbon dioxide is compressed?

Q. Yes; but it is assisted in its function by normal leakage around the closure head 70 and by leakage past the piston.

Q. Where in the patent do you find the statement that [2009] in the apparatus illustrated in Figs. 1, 2 and 3, there is any leakage around the closure head or around the piston? There is no such statement, is there?

A. No. It is a practical condition obtaining in all devices of this class. I know of no statement.

The Court: Including Stastney?

A. Stastney is not a device of this class at all, your Honor. I am speaking of practical solid carbon dioxide commercial presses used in the art. I say a loose-fitting plunger is the rule, because of the impossibility of lubricating that low pressure chamber, which makes this piston ring packing construction in gas-tight plungers virtually impossible. It is true that they operate a few times, and then water ice, low temperature, and lack of lubrication stops the operation.

Q. By Mr. Foster: When did you first know that?

A. What I have just stated as the operation of the piston in a carbon dioxide press?

Q. Yes. A. 1928.

Q. The same thing is true of presses that are employed for compressing water ice?

(Testimony of Charles L. Jones)

A. No, it is not; not at all.

Q. You have no knowledge of the conditions prior to 1928 in that respect? A. In that respect, no. [2010]

Q. Will you refer to Fig. 2?

The Court: In that last question are you referring to the pressing of CO₂ or to the mechanical process of pressing any material?

Mr. Foster: I had intended to refer to the mechanical process of pressing any material.

A. The question was not clear.

The Court: I did not think it was. With that understanding you may answer it.

A. I was familiar with pressing plungers long before 1928.

Q. That same thing was true of that long before that time, whether you were pressing CO₂ or something else, wasn't it?

A. It may have been true, but I doubt whether anyone understands the difficulties or the conditions existing in one of these low temperature chambers, when you endeavor to make the piston work in it, until he actually applies it, but I never tried it until 1928.

Q. Let us put it another way: If you were designing an apparatus to press something, and there is no necessity, because of the nature of the product, to hermetically seal the pressing chamber, you would not create any more trouble for yourself than you had to, would you?

A. No.

Q. You would make a loose-fitting piston? [2011]

A. Yes, and as experience taught you, you would have found it would have to be a great deal looser than was first indicated.

(Testimony of Charles L. Jones)

Q. The chances are it would be on the loose side rather than on the tight side? A. Yes.

Q. That is just common sense?

A. That is correct.

Q. By Mr. Foster: Please direct your attention, Doctor, to Fig. 1 of the patent in suit. A. Yes.

Q. Do you find there that the only means described in the patent for the withdrawing of carbon dioxide gas from the pressing chamber during pressing is the pipe line 68B? A. No, I do not so find.

Q. Where is there any statement in the patent that gas is withdrawn during the pressing operation in any other manner? A. There is no such statement.

Q. Do you believe that with the apparatus illustrated in Figure 2, there could be produced a block of commercial size, 10 by 10 by 10, and of commercial density?

A. Yes.

Q. What is the reason for your opinion that such a block of such density could be produced in the chamber 60 [2012] with the vent line 68B attached thereto, and could not be produced in the apparatus of the Stastney patent, with the vent line moved to the side wall and adjacent the end wall 18?

The Court: In relatively the same position as in Fig. 2?

Mr. Foster: Yes; thank you.

A. I see two additional difficulties. In this particular figure you have selected we have a horizontal device; the closure head 70 in practice and in fact is rarely or never well sealed.

Q. Do you find any such statement in the Stastney device? A. May I finish the answer?

(Testimony of Charles L. Jones)

Q. Answer, please, my question. I wish to confine your answer to the statements of the teachings of the patent.

A. There is no statement in the patent.

The Court: He answered in the negative; there is nothing in the specification; it only shows in the drawing. In the drawing it is indicated at 68B as the only way for the gas to escape; is that correct?

A. That is correct. That is all I am trying to say.

Q. But it is not covered in the specification?

Mr. Foster: It isn't clear to me from the testimony of the witness what the showing is in the drawing.

The Court: Ask him.

Q. By Mr. Foster: What is the showing in the drawing [2013] that is the basis of your opinion that gas may be withdrawn during said operation, through the pipe 68B?

A. Normal leaks. In the process operated in the Stastney counterpart liquid is evaporated in the chamber; in other words, a triple point operation was carried out, so that this leakage would not interfere in such a horizontal machine as this with the depositing of a mass of triple point crystals; yet, at the conclusion of the solid formation, and when pressing commences, the leakage functions to carry gas from the pores of the block. There is this normal leakage past the plunger 61. While the plunger 61 is not shown in the drawing, it has a definite degree of leakage. It is shown as a simple compression piston, without rings or other devices for retaining the gas, and because of its length, to one skilled in the art, he would know it would not be a seizing fit; it would be a running fit.

Q. As I understand your answer, your reason for believing that commercial blocks of commercial density

(Testimony of Charles L. Jones)

could be produced in Fig. 2 of the patent in suit, and not the Stastney device, is because, first, the drawings of the patent teach that the closure head 70 leaks; is that a correct statement?

A. No, the drawing merely indicates to one skilled in the art that it is a device which he knows will function in a certain way. There is nothing in the drawing to indicate leakage. In fact, I don't know a draftsman's [2014] convention to show on a blueprint there is a leak.

Q. Does there appear to you to be a packing ring or sealing face closure member 70? A. Yes.

Q. What does that indicate to you with respect to whether or not the closure head leaks?

A. It indicates that the man who made the drawing may have been laboring under a delusion that it would be tight.

Q. Your examination of the drawing, Fig. 2 of the patent in suit, teaches you that head 70 leaks. Does your examination of the apparatus illustrated in the Stastney drawing indicate to you that the head leaks?

A. On the contrary, the Stastney patent shows a head held down in position by multiple screw closure. I would be in doubt; I would not say that the Stastney patent might not show such leakage, and if such leakage were provided, I have no question it could be made to operate in that way. In other words, all that is necessary in the device in the court room is to loosen the bolts on top of the closure, and make an efficient device out of it; let the gas out.

Q. If we assume that in the apparatus of Fig. 2 of the patent in suit the closure head 70 does not leak, and the piston 61 does not leak, that apparatus, as I understand your testimony, is, in your opinion, not adapted

(Testimony of Charles L. Jones)

for the production of commercial size blocks of commercial density.

A. I must divide my answer. I believe it would make [2015] a block of commercial density prior to the introduction of the Fig. 5 machine, which is 40 pounds per commercial block. It is my opinion, however, that it probably would not produce, under the conditions outlined, blocks of 50 pounds per cubic foot.

Q. Would you direct your attention to page 2 of the patent? Will you read the sentence beginning in column 2, line 3?

A. "During this part of the operation any unfrozen gas or air which might be entrapped with the solidified gas is forced through the pipe 68B and a check valve 69 into the low pressure pipe 80. This is an important feature of our invention as the entrapment of gas and air has heretofore made it difficult to produce solid cakes of desired form."

Q. Now, do you find any other reference in the patent to the removal of carbon dioxide gas during the pressing operation from the pressing chamber? A. I do.

Q. Where in the specification in the patent?

A. I am afraid the numerous references are principally in the claims rather than in the specification.

Q. I think you stated you were confused by claims?

A. That is correct; I am.

(Short recess.)

Q. By Mr. Foster: Please refer to Kochenderfer patent, tab 17 of Defendants' Exhibit EE, and with the same [2016] premise which I previously stated, state what changes, if any, are required to adapt this apparatus for the production of solid carbon dioxide for its compression into blocks.

(Testimony of Charles L. Jones)

Mr. Caughey: Do you mean the original premise?

The Court: He meant the four basic premises: Density, dimension, size of block and returning of the gas to the system.

A. My answer is the same as for the Cartier patent.

Q. By Mr. Foster: You referred in your direct examination to an apparatus which was built at the 'Elizabeth plant, which included two movable platens for moving a body of solidified carbon dioxide, and an independent closure head.

A. That is correct.

Q. Do you have that apparatus in mind?

A. Yes.

Q. What was the date when that apparatus was completed?

A. I can't remember exactly. In attempting to arrive at that I have gone through a diary and some notes, which indicate that it was first used during November, 1928.

Q. And that was before you had ever seen any apparatus which you understood was devised by Cole and McLaren?

A. Yes, it was.

Q. How were those two pistons actuated? Was there hydraulic actuated means for them in this apparatus?

A. Yes.

Q. The closure head, was it operated by hydraulic [2017] means?

A. Yes, it was.

Q. Did the pistons operate by this hydraulic actuation to compress the snow into a block?

A. Yes.

Q. And after that was the hydraulic means actuated on the closure head to move it, to permit the block to come out of the chamber?

A. Yes.

(Testimony of Charles L. Jones)

Q. Were some of the hydraulic means actuated when the closure head was moved away from the chamber to cause the platen to eject the blocks? A. Yes.

Q. Was the chamber, during the solidifying operation, closed to atmosphere?

A. Yes. I must amplify that answer by pointing out that by that chamber I now mean, not merely the pressing chamber, but the entire enclosure, including the three operations: Snow forming tank, tamping compartment and compression chamber collectively.

Q. They were all closed to atmosphere during the three operations?

A. The three operations were enclosed.

Q. Likewise, the three operations were closed to atmosphere during the compressing operation?

A. That is correct. [2018]

Mr. Foster: No further cross-examination.

The Court: Anything further, Mr. Miketta?

Mr. Miketta: No.

Redirect Examination

Q. By Mr. Caughey: Dr. Jones, in the testimony you have given on cross-examination, which was based on certain eliminations, that you were not to consider things that were eliminated, in giving your answers did you mean in this testimony to change any of your testimony as to the various changes that were necessary in the prior art patents? A. Not in the slightest.

Q. That you gave on your direct examination?

A. Not in the slightest.

Mr. Caughey: That is all with this witness. Do you have any questions, your Honor?

The Court: No questions. [2019]

HARRY W. COLE,

recalled as a witness on behalf of the plaintiffs, in rebuttal, having been previously duly sworn, testified as follows:

The Clerk: You have been sworn? A. Yes.
[2020]

* * * * *

Q. By Mr. Caughey: Mr. Cole, I show you Defendants' Exhibits L. O and P. in this case, and ask you to examine them. Did you ever see any devices such as shown on those exhibits? A. No, I never did.

Q. Did anybody ever describe to you devices such as shown on those exhibits? A. No, sir.

Q. And particularly, did Mr. Martin or Mr. Hood ever describe such devices to you?

A. No, neither of them ever did.

Q. Did you have any conversations with Mr. Hood during the period of time that the Dry Ice Corporation was at the General Carbonic plant at Long Island City?

A. No, I never had any discussions with Mr. Hood, other than passing the time of day. [2039]

Q. You didn't discuss with him the operations of his plant?

A. No, I would not discuss that with him. I would discuss it with Mr. Martin, if there was anything to discuss.

Q. Did you have any discussions or conversations with Mr. Martin as to the operation of that plant?

A. Yes, I did; I had a number of conversations with him.

Q. Will you please state the substance of those conversations; also whether anybody else was present?

A. The substance of the conversations was—

(Testimony of Harry W. Cole)

Mr. Foster: The foundation has not been laid. I object to it upon that ground.

Mr. Caughey: Also fix the date when those conversations occurred.

A. I had several conversations with Mr. Martin. They were scattered over this period that they were with General at the General's plant.

Q. What period do you refer to?

A. That would be between May 25 and September 26. The only things that I ever discussed with him were usually in connection with the wasteful procedures and unnecessary loss of carbonic gas.

Q. When you say unnecessary loss, what do you mean, Mr. Cole?

A. I mean primarily losses due to the improper operation and maintenance of the devices which they were using in the [2040] plant.

Q. Will you give an example of what you mean by improper maintenance or operation?

A. Well, they very frequently were careless in not having the gaskets tight on the doors of the snow machines. They would allow the packing in their valves to get worn, and not replace them, and allow gas to blow out during part of the operation. For the moment, that is all.

Q. I don't believe you answered the question as to who else was present at any of these conversations.

A. Why, I think at times—I am sure at times Mr. McLaren was there, because he usually accompanied me when I made a tour of the plant. I don't recall that anyone else was ever present when I talked with Mr. Martin.

(Testimony of Harry W. Cole)

Q. Did you talk with Mr. Martin personally, or sometimes over the telephone, or what?

A. I more often talked to him over the telephone than I talked with him personally, because most of the time that I would be at the plant Mr. Martin would not be there.

Q. Did Mr. McLaren ever tell you about any conversations that he had had with either Mr. Martin or Mr. Hood in which they had disclosed to him a machine such as shown in L, O and P?

Mr. Miketta: That is objected to as calling for hearsay.

The Court: Read the question again, please.

(Question read by the reporter.) [2041]

The Court: Objection sustained.

Q. By Mr. Caughey: There was some testimony in this case that there was a scrap pile in the back of the plant, in the yard of the General Carbonic plant at Long Island City, during the period of time that the Dry Ice Corporation was there. Will you state from your knowledge whether or not such a scrap pile was there?

A. There never was a junk pile or scrap pile in that yard.

Q. How do you know that?

A. Well, for the simple reason that I had had segregated a certain section of the garage where all junk, all material of that kind, was kept, and if there was a pile of junk material anywhere on the place when I went over there it just got kind of unhealthy for somebody. I never liked to have junk piles strung all over the place, and that yard in there was the yard where we had our coke and our coke conveyors coming in, and the only thing that was in that yard, that they had there for any length of time,

(Testimony of Harry W. Cole)

other than coke, was the pile of failed cylinders which were piled up along the building.

Q. Did you inspect that yard when you went to the plant at Long Island City, of the General Carbonic?

A. I usually inspected everything.

Q. During that period of time Dry Ice Corporation was there? [2042]

A. I usually inspected everything when I went in any of the plants.

Q. Will you please state if any machines, such as shown in L, O and P, were there; whether you have seen the same?

Mr. Foster: That is objected to as calling for the conclusion of the witness.

The Court: Objection sustained.

Q. By Mr. Caughey: Did Mr. Martin at any time ever tell you that he had previously solidified, tamped and pressed CO₂ in a device, and that he would probably do so again? Did he ever make such a statement to you?

A. He never made any statement to me. Our discussions never went any further than the equipment they were using at that time in the plant of the General Carbonic.

Q. Did he ever discuss any equipment that they had used?

A. No, he did not.

Mr. Caughey: You may cross examine.

Mr. Foster: No cross-examination.

Mr. Miketta: No examination.

Mr. Caughey: Mr. McLaren.

The Court: In order to keep the record clear, suppose that the proposed exhibit be marked for identification, in order that you may identify it in your record.

Mr. Caughey: I am going to take it up with this witness.

The Court: Mark it for identification.

The Clerk: Plaintiffs' 32 for identification. [2043]

MALCOLM W. McLAREN,

recalled as a witness on behalf of the plaintiffs in rebuttal, having been previously duly sworn, testified as follows:

The Court: In order to keep the record clear, Exhibit 32 for identification is declined, the offer in evidence, for all the reasons previously indicated by the court. That will clear the record. Go ahead.

Mr. Caughey: Is the witness sworn?

The Court: Yes, he has been on before.

Mr. Caughey: That is right. I beg your pardon.

Direct Examination.

Q. By Mr. Caughey: Mr. McLaren, what is your present occupation?

A. I am eastern district superintendent for the Liquid Carbonic Corporation.

Q. How long have you held that position?

A. Since 1930.

Q. How long have you been connected with the CO₂ business?

A. I started in Detroit on May 1st, 1919, and was transferred from Detroit to Long Island City on December 1, 1924, and I am still in the same plant.

(Testimony of Malcolm W. McLaren)

Q. What was your position in Detroit when you were transferred? A. Chief engineer and superintendent.

Q. Will you please state, according to your best [2044] recollection, when Dry Ice Corporation moved into the plant at Long Island City of the General Carbonic Company? A. May 10, 1925.

Q. How long did they remain?

A. Until September 27, 1926.

* * * * *

Q. By Mr. Caughey: Did you make reports to Mr. Cole? A. I did.

Q. I show you Plaintiffs' Exhibit 32 for identification in this case, and ask you to examine the same, and state if you know what it is?

The Court: Just say yes or no, Mr. McLaren.

A. Yes, I know. [2045]

* * * * *

Q. By Mr. Caughey: When did you first see that document marked Plaintiffs' Exhibit 32 for identification?

A. I wrote it.

Q. On what day? A. On October 3, 1925.

Q. Was it true at the time that you wrote it?

A. It was.

Q. What did you do with the original?

A. I sent it to Mr. Cole by mail.

Q. Did you keep that copy?

A. I did, in my own file.

Q. For how long a period of time?

A. Until it was removed from the file for the interference testimony.

Q. When you say interference testimony do you mean the interference involving the Cole and McLaren patent in suit? A. That is right.

(Testimony of Malcolm W. McLaren)

Q. The operations of what concern are referred to in that report, will you please state?

A. The Dry Ice Corporation.

Q. And were they in the plant of the General Carbonic Corporation at that time? [2046]

A. They were.

* * * * *

Q. By Mr. Caughey: Are you familiar with the plants of the General Carbonic Corporation?

A. I was.

Q. How many plants did they have? A. Nine.

Q. Were you familiar with those plants?

A. I was.

Q. Will you please state of your knowledge whether the Dry Ice Corporation of America ever operated in any of those plants?

Mr. Foster: Objected to on the ground that no foundation has been laid.

The Court: Well, I think he inadvertently failed to put the date in. In October, 1925, were you familiar with those plants?

Mr. Caughey: Yes, in October, 1925. A. Yes.

The Court: Now, you may answer the question.

Mr. Caughey: That was what I meant to put it.

A. Can I hear the question? [2047]

(Question read by the reporter.)

Q. By Mr. Caughey: Other than the Long Island City plant? A. No.

Q. Was the Dry Ice Corporation of America operating in the Long Island City plant at the period of time that plaintiffs' Exhibit 32 for identification, as you stated, was written by you? A. Yes, sir. [2048]

* * * * *

(Testimony of Malcolm W. McLaren)

Q. By Mr. Caughey: During the period of time that the Dry Ice Corporation of America was in the Long Island City plant of the General Carbonic Company, did you ever have any conversation with Mr. Martin, in which he told you that he had pressed, solidified and tamped CO₂ in some device which he had operated prior to coming to the Long Island plant? A. No.

Q. Did he ever make such statement to you at any time? A. No.

Q. Did Mr. Hood ever make any such statement to you? A. No, sir.

Q. At any time? A. At no time.

Q. I show you Exhibits L, O and P in this case and ask you if you ever saw any machines such as shown in those exhibits? A general question: Have you ever seen any such [2050] machines? A. No, sir.

Q. Did Mr. Martin ever describe any such machines to you? A. He did not.

Q. Did Mr. Hood ever describe any such machines to you? A. No, sir.

Q. And when I ask that question, I am talking about a period of time either when they were in that plant or before or after, that is, at any time.

A. The answer is no.

Q. Did you have any conversations with Mr. Hood while the General Carbonic—while the Dry Ice Corporation was in the General Carbonic plant at Long Island City? A. Conversations, yes.

Q. During what period of time?

A. During the stay there from May 10, 1925, until September 27, I think, 1926.

(Testimony of Malcolm W. McLaren)

Mr. Miketta: May the witness be instructed to speak a little louder again, please?

The Witness: I will.

Q. By Mr. Caughey: Do you recall when was the time of the first conversation you had with Mr. Hood after the Dry Ice Corporation moved into the Long Island plant?

A. Well, conversations would be along the line of—

Q. No. Do you recall when the time was?

A. Oh, yes. [2051]

Q. I am trying to fix the time. A. Yes.

Q. Within a day or two days or three days after they moved in, or what?

A. Well, the conversations were frequent as far as their operation was concerned and so forth.

Q. Did those conversations continue?

A. Friendly. Yes, sir.

Q. What was the substance of the conversations?

A. Well—

Mr. Miketta: Objected to as calling for hearsay.

Mr. Caughey: They put a witness on the stand who testified as to conversations, may your Honor please.

The Court: You did not object to them when they went in, but on rebuttal you have to be more specific. You may do it in this way, Mr. Caughey: You may take a piece of evidence as testified to by Mr. Martin and say: Was that statement made during any conversation? And then you are within the proprieties.

Mr. Caughey: Well, I believe I have covered as far as the statements made.

The Court: I think you have covered the material points.

(Testimony of Malcolm W. McLaren)

Mr. Caughey: Yes.

The Court: You can ask him. I think he has covered them.

Q. By Mr. Caughey: Did you have any conversations with Mr. Martin concerning the loss of gas in the operation of the [2052] Dry Ice plant? A. Yes.

Mr. Foster: Objected to as immaterial and calling for hearsay evidence.

The Court: Well, probably, but the answer is "Yes" and it is immaterial. But had it been "No," it might have been very material, Mr. Foster. The answer may stand.

Mr. Caughey: May I have the question and answer?

The Court: He said he did have such conversations with Mr. Martin as to the waste of gas.

Q. By Mr. Caughey: And when you state "waste of gas" what have you reference to?

A. The doors on their snow tanks leaking, carelessness of connecting up the liquid line to those doors, and leaving the blow-back line open when they were removing the snow from the snow tanks. It was careless losses. At no time did I complain on the normal or natural losses.

Q. And did you have conversations with—pardon me. We have reference to Mr. Martin?

The Court: Mr. Martin, yes.

Q. By Mr. Caughey: —with Mr. Hood about such losses? A. Yes, sir.

Q. Were they similar to the conversations had with Mr. Martin? A. That's right.

Mr. Caughey: That is all. You may cross examine. [2053]

Mr. Foster: No cross-examination.

Mr. Miketta: No cross-examination. [2054]

* * * * *

Mr. Miketta: Mr. Morris has given me a list of the various documents which he would like to introduce into evidence and I have informed him that I have no objection, if the documents are material and relevant, to items 14, 15, 16, 17, 18, 19, 20, 21, 24, 27, 28, 29, and 36, those item numbers appearing on the list of documents which was served on us some time ago.

The Court: Then, let each one of them be admitted into evidence and given its proper number. I am going to have to go over them in chambers, anyway, and it will save you a lot of time.

Mr. Morris: You think it is not particularly desirable that I designate in a 3-line statement what each is?

The Court: I will be very glad to have you do so.

Mr. Morris: I will do it.

The Court: It will be very helpful to me if you put it in the record that way.

Mr. Morris: Yes; I have it.

The Court: Let us take them in the order in which they have been indicated.

Mr. Morris: I think I can do that.

The Court: By Mr. Miketta, and then they will take those [2055] numbers, and then those that there is dispute about we will take after that.

Mr. Morris: Very good.

Mr. Miketta: May I ask the clerk to announce the number of each one as it is introduced?

The Court: As they are introduced, let the clerk announce the number.

Mr. Morris: The first one that I will offer will be 33.

The Clerk: Where are the documents to be marked?

Mr. Morris: Mrs. Bow, in order to avoid confusion, if that is all right, your Honor, will deliver them to the clerk as I finish them off.

The Court: That is all right.

Mr. Morris: As Plaintiffs' Exhibit 33 I offer into evidence the non-exclusive sub-license from International Carbonic, Inc., the original corporation of that name, to Liquid Carbonic Corporation, subject to rights, the rights of Mathieson Alkali Works, Inc. under an agreement between it and International Carbonic Engineering Company.

I may be able to help your Honor just a little bit by a two-line statement. There was a license agreement from Engineering to Mathieson prior to 1934 which gave certain rights under certain patents which Engineering had; consequently, in '34, when Engineering was making agreements with Inc., it made those agreements subject to the outstanding licenses theretofore made to Mathieson. [2056]

Mr. Miketta: May the names of the parties and the dates be given so that we can follow it?

The Court: I think that might be well to just give the names of the parties and the dates. As I understand it, you are substituting copies, with the consent of the defendants, for the originals.

Mr. Morris: That is right.

The Court: So that you may keep them.

Mr. Miketta: That is correct, your Honor.

Mr. Morris: That was dated July 1, 1934.

As Plaintiffs' Exhibit 34, I offer into evidence a non-exclusive sub-license from International Carbonic, Inc., the original Delaware corporation, to Michigan Alkali Company, subject to certain rights of Mathieson, that agreement being dated July 1, 1934.

The Court: As you hand them up, you hand me up the originals and then the young lady can get them back from here for her file.

Mr. Morris: 35. As Plaintiffs' Exhibit 35, I offer into evidence an amendment to sub-license from International Carbonic, Inc., the original Delaware corporation of that name, to Dry Ice, Inc., the amendment being dated August 1, 1936.

As Plaintiffs' Exhibit 36, I offer into evidence amendment to sub-license from International Carbonic, Inc., the original Delaware corporation of that name, to Liquid Carbonic [2057] Corporation, of July 1, 1934, the amendment now being offered being dated August 1, 1936.

As Plaintiffs' Exhibit 37, I offer into evidence amendment of the sub-license from International Carbonic, Inc., the original Delaware corporation of that name, to Michigan Alkali Company, of July 1, 1934, the amendment now offered as Plaintiffs' Exhibit 37 being dated August 1, 1936.

As Plaintiffs' Exhibit 38, I offer into evidence a license agreement between International Carbonic, Inc., the original Delaware corporation of that name, and Liquid Carbonic Corporation, the agreement being offered being dated January 1, 1939.

As Plaintiffs' Exhibit 39, I offer into evidence a license agreement between International Carbonic, Inc., the original Delaware corporation of that name, and Pure Carbonic, Inc., that license agreement being dated January 1, 1939.

As the Plaintiffs' Exhibit 40, I offer into evidence the license agreement between International Carbonic Engineering Company and Mathieson Alkali Works, that agreement being dated August 11, 1930.

Mr. Miketta: Just a minute. That was not in the list of documents.

The Court: Let us skip it temporarily, then.

Mr. Morris: My notes show that that is No. 22 on your list.

Mr. Miketta: Yes; and I did not repeat No. 22. I had no [2058] objection to 21, 24 —

Mr. Morris: I am sorry.

Mr. Miketta: — 27, 28, 29, and 36.

Mr. Morris: I am sorry. I misread my symbols.

The Court: All right.

Mr. Morris: I withdraw the agreement referred to as Exhibit 40.

I offer into evidence the agreement between International Carbonic, Inc., the original Delaware corporation of that name, and Mathieson Alkali Works, Inc., dated August 1, 1936.

41. As Plaintiffs' Exhibit 41, offer into evidence license agreement between International Carbonic, Inc. which was then a New York corporation, and Pittsburgh Plate Glass Company, that agreement being May 10, 1939.

As Plaintiffs' Exhibit 42, I offer into evidence the license agreement between International Carbonic, Inc., then a New York corporation, and Wabash Portland Cement Company, dated February 12, 1940.

As Plaintiffs' Exhibit 43, I offer into evidence license agreement between International Carbonic, Inc., the new Delaware corporation of that name, one of the plaintiffs in the present suit, and Carribbean Carbonic Corporation, dated April 23, 1941.

I think that, if your Honor please, completes the list of those to which no objection is made.

Mr. Miketta: 36. [2059]

Mr. Morris: 36 is right.

As Plaintiffs' Exhibit 44, I offer into evidence the license agreement between International Carbonic, Inc., as

the original Delaware corporation, and Michigan Alkali Company, dated January 1, 1939.

As Plaintiffs'—

Mr. Miketta: May the court please—pardon me. You had finished the introduction of those, had you?

Mr. Morris: I had finished offering those which I was advised no objection would be made to.

Mr. Miketta: That is right.

The Court: They will be received, and let the record show that I have asked the clerk to hand the original copies which have been given to me back to Judge Morris' secretary.

Mr. Miketta: May the court please, there were two other items listed—I do not have the item numbers—but they constitute a letter or some correspondence between Musick and Burrell and Mr. Morris, dated January 6, 1943, and January 14, 1943. I do not question that this correspondence took place. I do object to their introduction on the ground that I do not see that they are relevant and material, and that we are burdening the record with a great many unnecessary documents.

Mr. Morris: I have departed from my logical sequence of evidence in order to accommodate counsel for defendants. I think I should be permitted in the documents to at least offer them [2060] in the order now in which I think they are properly presented.

The Court: Yes; I think that is true.

Mr. Morris: As Plaintiffs' Exhibit 44—

The Court: We have had 44 in.

Mr. Morris: 45, isn't it? As Plaintiffs' Exhibit 45 I offer into evidence a license agreement between International Carbonic Engineering Company and Mathieson Alkali Works, dated August 11, 1930.

Mr. Miketta: That, your Honor, is objected to on a number of grounds. In the first place, that agreement is dated August 11, 1930. At that time the plaintiff corporations did not even own the patent in suit or the application for the patent in suit. The document is objected to on the ground that it is not relevant and not material; it does not pertain to the issues here involved at all; it does not include the patent in suit. I see no necessity of burdening the record with documents dating back to 1930 not concerned with the subject matter here before your Honor.

That same criticism applies to the next item, Item 23. It also deals with the Mathieson contract and it is simply a modification or a slight change which does not mention the patent in suit, again.

Mr. Morris: The purpose of that is this: The purpose of that offer is this: There have been many charges made against us, almost none of which have been sustained or any evidence offered in support of them by defendants. When I [2061] offered an agreement a few days ago of 1934 containing a recital of a prior agreement there was objection by the learned counsel for the defendants because a document was referred to therein which had not been offered into evidence. The Mathieson agreement, license agreement, made by Engineering Company to Mathieson in 1930, is still outstanding. It was amended, has been amended two or three times, the last amendment being in 1942, that amendment containing the same amendatory or amended provision as is contained now in two added license agreements; our contention being that after this Mathieson amendment of 1942, every licensee was, under the express terms of section 16 of his outstanding license agreement, entitled to a like provi-

sion, and there is in the 1942 agreement the identical provision which was offered to the defendant in this case through Mr. Burrell, by the correspondence through Mr. Musick, or by the correspondence through Mr. Musick and myself. I say "offered"; that may be too strong a word. I will let it stand because that was the intent of it. Your Honor may say that some other word would be a little better than "offer", implied tender, express tender, or whatever it may be.

If I began by offering the 1942 amendment to the Mathieson license, I would anticipate probably that the same objection would arise, that there were preceding documents. All I am asking is that your Honor have before you when you decide this case the documents which evince the outstanding agree- [2062] ments now, and when those agreements had their origin; and it is for that reason, because, that agreement having its origin in 1930, is in effect today under the amendment of 1942.

The Court: How many of these documents in dispute or objected to for similar reasons are there, roughly?

Mr. Miketta: There are eight, your Honor. And I might as well state the basis of my objection to the others.

The Court: Yes.

Mr. Miketta: To items 25, 26, 30, 31, 37, and 38 the objection is made that these are dated subsequent to the filing of the complaint in this case; they have no bearing on the matter before your Honor. They are dated, respectively, April 1, 1942, April 1, 1942, February 4, 1944, February, 1944, sometime in August, '42, March of '44. I state I object to these documents on the ground that they are not relevant; they have no materiality here; they are dated subsequent to the filing of the complaint.

As to Item 30, that happens to be simply a certificate by the secretary of one of the corporations regarding a certain directors' meeting. That is a self-serving and personal document pertaining to transactions of this plaintiff. We were not privy to those transactions; and it is not the best manner of proof. And what materiality is there as to what took place in a directors' meeting in 1944, long after this case, three years nearly—two and one-half years after [2063] this complaint was filed.

The items 37 and 38 constitute carbon copies of certain unsigned notices, at least as my copy shows, and certain letters written by one of the plaintiffs to a licensee; and I am informed that every licensee received a similar letter. Well, those are dated in August of 1942 and March of 1944; and I object to them on the ground that they are late; they are not relevant; they are not the best evidence; and they are not the proper method of proof, and certainly have no materiality.

Mr. Morris: The answer to that inquiry or to that objection was embodied in one of the memoranda which I supplied to your Honor, I think on about the first of this or last week. That is my understanding of it as there stated. I will state it again.

Apparently the draftsman of the 1939 amendment to the license agreements, most of the license agreements being 1934, amendment in 1936, amendment in 1939. In the 1939 there was as part of the formula for measuring royalty to be paid to the licensor what I will call the "whether or not clause." Whether that is an appropriate yardstick for measuring royalty I am not passing upon. I submit that there is no authority that I have been able to find anywhere that says that it is not, particularly under the circumstances here existing, but for the purpose of my offer let us pass that just for a moment. [2064]

Then we come under the purging doctrine, and the amendment of 1942 to Mathieson changed that formula so as to substitute another formula as to which we think there cannot be any possibility of objection. If we were to take the case down in the Fourth Circuit Court of Appeals—and I forget names of cases. I do not recall the name of that, but it is on my memorandum—a recent case in which a supplemental bill was filed even after decree, interlocutory decree after an opinion, that case goes much farther than the case at bar. These amendments were made before the defendants—this amended and supplemental bill was filed in this case after the Mathieson amendment of 1942 and after the amendment to the Pure license in February, 1944. These defendants for whom the learned counsel sitting at my left spoke were not in this case at that time, and this supplemental bill brings them in; and when those amendments were added to the Mathieson license agreement and the Pure license agreement, as I understand Section 16 of the contracts of all these parties, they stand from that moment on in the precise position that Mathieson and Pure stood after the amendment to the license. They took it under that right; and you will find that my letter of 1943 to Mr. Musick says so to him in effect, almost exactly. The letters of March 8, 1943, were sent merely to notify all the other licensees “here is the amended license” and, in effect, that they were to pay from the date of that license on like terms. [2065]

So, on those grounds, both to show that no license that we have had at any time has been in violation of the anti-trust laws, and also to show that if, by any possibility, any license agreement that we have granted has gotten out of the oasis into the desert, so to speak, on that boundary line which it has been exceedingly difficult to determine,

and it being apparently one place today and another place tomorrow—that if we have gotten beyond that uncertain boundary at any time, that we have completely changed the situation so that the doctrine of unclean hands or anti-trust law violation would not now exist and did not exist at the time of the filing of the action.

The Court: Before we take a recess, does anyone have anything to add to this matter?

Mr. Foster: Mr. Miketta stated the objection on behalf of my client also.

Mr. Caughey: Well, I would say that I think your Honor is fully familiar with the cases that have relevancy to the question of purging and the purpose for which these documents are offered. I think that your Honor is familiar with them.

The Court: Let us take a five-minute recess.

(Short recess.) [2066]

The Court: As I understand it, the documents which are offered prior to the date of these other documents are documents which are referred to in subsequent documents and pertain to the line of conduct of the plaintiff.

Mr. Morris: Yes, your Honor.

The Court: And the balance of the documents are documents which change the existing arrangements prior to the filing of the counter-claim in this case?

Mr. Morris: Yes, your Honor.

The Court: They may be admitted, subject, however, to striking sua sponte, or on a motion to strike in the event I find that there is nothing in them material to the matter, and they should not be in the record, in which event I will just strike them myself, or admit them subject to a motion to strike.

Mr. Morris: Very well, your Honor.

The Court: If you will indicate what they are, so I will have the picture in mind.

Mr. Morris: I offer as Plaintiffs' Exhibit 45 document dated August 11th, 1930, being a license agreement from International Carbonic Engineering Company to Mathieson Alkali Works, it being offered here because that agreement, as now amended, is still in force.

As Plaintiffs' Exhibit 46 I offer amendment to license agreement of August 11, 1930, between International Carbonic Engineering Company a Delaware corporation, and the Mathieson [2067] Alkali Works, Inc., dated August 1, 1936.

As Plaintiffs' Exhibit 47 I offer in evidence an amended license agreement between International Carbonic Engineering Company and The Mathieson Alkali Works, Inc., the amendment being dated April 1, 1942.

As Plaintiffs' Exhibit 48 I offer in evidence agreement between International Carbonic, Inc., a Delaware corporation, of that name, and The Mathieson Alkali Works, Inc., that agreement being dated April 1, 1942. I may be able to clarify that just a little, your Honor, because these later documents, after the creation probably of the original Inc., and the granting of exclusive license agreement to Inc., subject to Mathieson, in order to make sure Mathieson had a full agreement Inc. granted a like license and acquiesced in any changes that were made by Engineering in the original agreement.

I offer as Plaintiffs' Exhibit 49, in evidence, letter from International Carbonic, Inc., to Wabash Portland Cement Co., enclosing a copy of amendment of April 1, 1942, to The Mathieson Alkali Works, Inc.

As Plaintiffs' Exhibit 50 I offer letter of August 14, 1942, from International Carbonic, Inc., one of the plaintiffs herein, to Michigan Alkali Company, together with

enclosure as sent to Wabash Portland Cement Company, the same day.

As Plaintiffs' Exhibit 51 I offer in evidence a like [2068] letter, from like author to The Liquid Carbonic Corporation, likewise making the same enclosure of a copy of amendment to Mathieson Alkali Works, Inc.

As Plaintiffs' Exhibit 52 I offer a like letter from International Carbonic, Inc. to Pure Carbonic, Incorporated, together with enclosure.

As Plaintiffs' Exhibit 53 I offer in evidence like letter from International Carbonic, Inc., one of the plaintiffs, to the Caribbean Carbonic Corporation, enclosing a like enclosure.

As Plaintiffs' Exhibit 54 I offer in evidence letter from International Carbonic, Inc., to Pittsburgh Plate Glass Co., together with enclosure as sent Portland Wabash Cement Company, of same date, the letter to Pittsburgh Plate Glass Company being August 19, 1942.

As Plaintiffs' Exhibit 55 I offer in evidence letter dated January 6, 1942, from Hugh M. Morris, counsel for plaintiffs, in this case, to Elvon Musick, Esq., Los Angeles, of counsel, and attorney for the original defendants, including a copy form of license agreement and suggested changes therein.

As Plaintiffs' Exhibit 56 I offer in evidence a letter dated January 14, 1943, from Elvon Musick to Hugh M. Morris, acknowledging receipt of letter of January 6, 1943, and enclosures.

Mr. Foster: If the court please, I wish to interpose [2069] an objection to the reception of both Exhibits offered as 55 and 56, upon the ground that they are subsequent to the filing of the suit, filing of the complaint. These are not tied in as were the other documents, the contracts made long before.

Mr. Morris: But prior to the filing of the amended and supplemental bill in this case.

The Court: I will receive them, subject to a motion to strike. I am not 100 per cent sure, but in any event I will get the whole picture before me.

Mr. Miketta: Your Honor will recall that my objection to that series of 50 to 54, was upon the ground that they were not the best evidence and not the proper method of proof. They are just carbon copies, as I understand it.

Mr. Morris: Under the new rules I have gathered the impression that they were intended to do away with many of the letter-bound intricacies of the old rules of law and rules of evidence, when these are admitted as the genuine instruments. The admission of genuineness could have no force and effect other than they are what they purport to be, namely, notices to these other licensees. I submit this is the very best evidence there is, unless we go around the country taking depositions.

The Court: It isn't the new rules, but the statute which makes it simple to prove these matters when the proper foundation is laid. Even under the strictest interpretation the man who sent the letter may state that he sent the original, and this is a carbon copy, and then it is admitted in evidence. If there is any question about the authenticity of the copy then, of course, the original may be demanded. Is there any doubt in the mind of counsel that this is a copy of the original that was sent to Mr. Musick?

Mr. Miketta: May it please the court, I am simply referring to the rule, that I do not believe it is proper to prove actual mailing and actual receipt by just admitting unsigned carbon copies of something.

The Court: That is true. I was just trying to shorten it up.

Mr. Miketta: I was trying to shorten it up by not having them in at all.

Mr. Morris: But there is an admission of genuineness of these documents.

Mr. Miketta: I don't recall whether they included these or not.

Mr. Morris: It included it to this extent; that is, when I exhibited these original documents to learned counsel for the defendants, as I recall it, I handed them one of these and said that like letters went to the other licensees.

The Court: I think he is not objecting to those. He is objecting to this one to Musick, is that correct?

Mr. Miketta: No, it is to this series. I did not [2071] recall that I had admitted the genuineness of this particular series of letters. This is a series of notices apparently to various people that have now been marked Exhibits 50 to 54 inclusive.

The Court: I think if you have admitted genuineness, the only objection you would have would be to materiality; isn't that correct?

Mr. Miketta: That is correct. I did not recall I had admitted these.

The Court: Let them be admitted with the understanding if there is any error they may be objected to. If they are not material they may be subject to a motion to strike.

Mr. Morris: As to the letter to Morris by Mr. Elvon Musick, he will take the stand admitting the mailing of it.

Mr. Miketta: No, I did not object to it on that ground.

Mr. Morris: Likewise the letter I got in response.

As Plaintiffs' Exhibit 57 I offer in evidence certified copy of resolution of the board of directors of International Carbonic Engineering Company, approving a new form of sub-license thereafter to be issued by International Carbonic, Inc. That was offered originally as Plaintiffs' Exhibit 10, but your Honor thought that was premature. That resolution being dated February 4, 1944, and it was pursuant to that resolution that the license to Pure, dated February 8, 1944, bearing date the 1st day of February, 1944, was granted by Inc., and also pursuant to that resolution that the [2072] subsequent license to Liquid had been issued, showing that both of these corporations, prior to the filing of the supplemental bill, changed their form of license in an endeavor, if there had been any inadvertence, stepping over the boundary line, to get back within the boundary line.

As Plaintiffs' Exhibit 58, I offer in evidence Amended License Agreement between International Carbonic, Inc., a Delaware corporation, and Pure Carbonic, Incorporated, dated February 8, 1944.

Mr. Miketta: My copy of this last license to Pure is dated February 1st.

Mr. Morris: I think that is made a sort of an effective date.

The Court: The first date is February 1st, but the last date February 8th; made as of the 1st; signed as of the 8th.

Mr. Morris: As Plaintiffs' Exhibit 59 I offer in evidence the same contract precisely. made with Pure, but this one was made with Liquid.

Mr. Foster: That last exhibit, your Honor, is an exhibit dated after the filing of the counter-claim.

Mr. Morris: It is after the filing of the counter-claim. That would arise with respect to that question, whether Section 16 of the licenses that were in force and effect prior to the amendment to the Mathieson license, and prior to the amendment of the Pure license, did not in and of itself give [2073] them the benefit of all the terms that were granted to Mathieson. We think it did. The letter to Mr. Musick, which hadn't that thought in mind at all, at that time, indicates that was plaintiffs' understanding.

The Court: I will receive it under the same arrangement, subject to a motion to strike. If Section 16 has given the same right then it might be admissible on an entirely different theory; I might conceive it might be admissible on certain questions, regardless of the fact it came up as a counter-claim. So long as that is understood.

Mr. Morris: As Plaintiffs' Exhibit 60 I offer in evidence letter from International Carbonic, Inc., to Wabash Portland Cement Company, including copy of the amended license agreement to Pure Carbonic, Incorporated, bearing date February 1, 1944. The letter I have referred to bearing date of March 8, 1944.

As Exhibit 61 I offer in evidence a like letter of the same date from the same author to Liquid Carbonic Corporation.

As Plaintiffs' Exhibit 62 I offer in evidence a like letter of the same date, from the same author, to Mathieson Alkali Works, Inc.

As Plaintiffs' Exhibit 63 I offer in evidence a like letter from the same author, of the same date, to Wyandotte Chemical Corporation, Michigan Alkali Division.

As Plaintiffs' Exhibit 64 I offer in evidence like [2074] letter of the same date, to-wit, March 8, 1944, from the same author to Pittsburgh Plate Glass Co.

As Plaintiffs' Exhibit 65 I offer in evidence a like letter of the same date, from the same author, to Caribbean Carbonic Corporation.

I think that is all, your Honor, except P.X.13. I think that was marked only for identification. That is a document dated January 1, 1939. It is an amendment to the license agreement of July 1, 1934, as amended August 1, 1936, and November 24, 1937, from International Carbonic, a Delaware corporation, to International Carbonic, Inc. It is of the same general tenor, but I think it was merely marked for identification, because of the *like* of timeliness of the previous one.

The Court: All of these documents will be received and given the number as indicated, subject to a motion to strike.

Mr. Morris: I offer in evidence, as our next exhibit number, certificate of dissolution of International Carbonic, Inc., a New York corporation, which was a new name for the old Adico Development Corporation. That certificate of dissolution is dated June 29, 1940.

The Court: It may be received as plaintiffs' next in order. [2075]

Los Angeles, California, Tuesday, June 6, 1944; 10:00 a. m.

(Parties present as last noted.)

The Court: You may proceed.

Mr. Morris: May your Honor please, on Friday, I think it was, learned counsel for defendants asked for an agreement made as of the first day of July, 1934, by and between International Carbonic Engineering Company, the party of the first part, and Adico Development Corporation, a New York corporation. I found that among my papers, and offer it into evidence as Plaintiffs' Exhibit 67.

The Court: It may be received and marked Plaintiffs' Exhibit 67.

Mr. Morris: May I substitute a copy?

The Court: Yes; substitute a copy. Now, is there anything further?

Mr. Foster: If the court please, I have just now checked this morning with the clerk a list of the exhibits and find three or four that I understood were in evidence that were marked only for identification as Defendants' exhibits. The first is Defendants' Exhibit N, a sketch made by Mr. Martin of the snow tank, which I understood went into evidence at page 952 of the record.

The Court: Yes; that went in as illustrative of Mr. Martin's testimony.

Mr. Foster: Yes; that is correct, your Honor. [2079]

The Court: That may be received and you may make that change.

The Clerk: That is Defendants' N?

The Court: N like in "Nan."

[Note: Defendants' Exhibit N will be found in the Book of Exhibits at page 1375.]

Mr. Foster: And Defendants' Exhibit DD, which was request 53 and the admission, with Exhibit 9, the contract, attached thereto, I understand that went in at record 1193.

The Court: That was my recollection of it.

Mr. Foster: May be it received, your Honor?

The Court: It may be received.

[Note: Defendants' Exhibit DD will be found in the Book of Exhibits at page 1413.]

Mr. Foster: And Defendants' Exhibit HH, a sketch made by Professor Clapp of the Elworthy machine, my records show it went in at page 1292 of the record, went into evidence.

The Court: It may be received and so marked.

[Note: Defendants' Exhibit HH will be found in the Book of Exhibits at page 1564.]

Mr. Foster: And the last one, Defendants' Exhibit NN, one sheet of figures by E. P. Wells with respect to prior patents, that was a chart, and my records indicate it was received at record page 1555 of the record.

The Court: Oh, yes; illustrative of the testimony, if I remember correctly.

Mr. Foster: Yes. May it be so stipulated?

The Court: It may be so received.

[Note: Defendants' Exhibit NN will be found in the Book of Exhibits at page 1579.]

Mr. Foster: Thank you.

Mr. Caughey: May your Honor please, in checking the plaintiffs' exhibits, Plaintiffs' Exhibit 8 is marked for

identification on the list that the clerk handed us and, at [2080] 298 of the record, it appears that it was offered in evidence as illustrative of the testimony of the witness then on the stand.

The Court: That is correct; and it will be received. That was a large drawing, Fig. 1, that we had been using.

Mr. Caughey: That is correct; and there are some notations on that, so it should be in.

The Court: Yes.

Mr. Caughey: And Plaintiffs' Exhibit 13 is marked for identification, but that went into evidence as Plaintiffs' Exhibit 39, amended license agreement 1-1-39—no. I am wrong on that. Just a second. Oh, it went in as 13. You remember there was some discussion of that and it was passed and was not offered into evidence at the time because of the fact that your Honor indicated it might be a little out of order to be received at that time.

The Court: Is that the one to Pure or to Liquid?

Mr. Caughey: That is the one between Engineering and Inc. It was an amended exclusive license agreement.

The Court: Then, that is 36, is it? No; that is dated April.

Mr. Caughey: No; it follows 36. It was amendment of the license of 8-1-36, but it went in and was offered by Mr. Morris into evidence when he put that other document into evidence.

The Court: Why don't we just give it the number 13? [2081]

Mr. Caughey: Yes, sir; that is what I suggest.

The Court: It may go in as No. 13.

Mr. Caughey: I note Plaintiffs' Exhibits 24, 25, and 26 are marked for identification. Those are the three letters and documents that Dr. Jones referred to in re-

refreshing his memory, so I presume that they would remain for identification. They were referred to in his testimony somewhat and some parts of them were referred to. If you will recall, Dr. Jones used those in connection with the date on which the machine was installed at the Elizabeth plant.

The Court: He used those to refresh his memory.

Mr. Caughey: That is correct.

The Court: They will stay, then, for identification; they will stay among the documents.

Mr. Caughey: I believe that concludes as far as the exhibits. There is one other matter that, I believe, should be taken up at this time. I am not speaking about corrections in general, because I do not know how your Honor wishes that handled, that is, minor corrections in the record. But in checking over the record, we do find that, on pages 1630 and 1631—

The Court: Which volume?

Mr. Caughey: Of Volume 15, which was during the testimony of Mr. Hood, that on those pages reference is made to "Mr. McLaren and Mr. Josephson" which clearly was an error, because that was Mr. Martin and Mr. Josephson that was [2082] referred to in those pages. The reporter, on pages 1630 and also 1631, referred to the parties as "Mr. McLaren and Mr. Josephson." I believe your Honor will recall distinctly that Mr. Josephson came with Mr. Martin, and Mr. McLaren had nothing to do with it. He carried that error through both of those pages.

Mr. Miketta: I think that is our understanding of the purport of the witness' testimony, also, your Honor, that he referred to Mr. Martin and not to Mr. McLaren as having brought these visitors in.

Mr. Foster: That was my understanding of it, too.

The Court: Very well. Then, may it be stipulated that the record may be corrected so that on page 1630, line 3, "McLaren" will be changed to "Martin"; on pages. The reporter, on pages 1630 and also 1631, re- that "McLaren" of the Knickerbocker Ice Company?

Mr. Caughey: No; that is Martin also.

The Court: That is Martin also.

Mr. Miketta: And line 16.

The Court: Line 7, line 16, and line 19.

Mr. Caughey: Line 19. I believe that was all. There are several other corrections, but this was so apparent that I thought I had better call it up at this time. [2083]

* * * * *

Mr. Morris: We do not know of any new matter between the filing dates of the patents which were mentioned to us on [2087] Friday last, between the filing dates and the dates of issuance of the patents. [2088]

* * * * *

Mr. Foster: In order to clarify the record, the certified copies which were referred to were Nos. 1,659,431, Josephson; 1,631,037, Kochenderfer; 1,726,373, Voightlander. Is that agreed, Mr. Morris?

Mr. Morris: Yes, sir.

The Court: Very well; the stipulation will be received.

* * * * *

Mr. Foster: If the court please, in order to minimize the time required for briefing and argument, and the time required by the court in considering the defenses raised by the two answers of the defendants, we have reviewed those defenses.

With respect to the affirmative defense of laches we feel that possibly we have not produced sufficient evidence to establish that defense. While we had hoped that we could produce more evidence relating to that issue, we felt during the trial that we might even then produce more evidence, but due to the length of the trial and the fact that that is not our principal defense, Mr. Miketta and myself elected not to [2089] pursue that. We therefore will not urge the affirmative defenses of laches and it might be stricken, if the court desires, from both answers of all of the defendants; and exhibits which are marked for identification as Defendants' Exhibits V to CC, inclusive, may be stricken from the file; they are marked only for identification; and those that comprise the publications by which we sought to show an open and notorious use of the process complained of by the defendants and their predecessors, and the court indicated that unless we could bring those publications home to some plaintiff to prove that they had knowledge of that, that they were not to be received in evidence.

The Court: Which exhibits are those?

Mr. Foster: Those are Exhibits V to CC, inclusive; V, W, X, Y, Z, AA, BB, and CC.

The Court: V, W, X, Z, AA, BB, CC may be stricken.

Mr. Foster: Shall we remove them from the file, your Honor, to avoid encumbering the record?

The Court: Yes; they may be removed from the file.

Mr. Miketta: In order to follow that up, I think request for admission 59 of Exhibit U, which was used as the means of introducing those exhibits, should also be stricken from Exhibit U.

The Court: Which number?

Mr. Miketta: 59, request and admission 59.

The Court: Very well. [2090]

Mr. Foster: We have also, if the court please, given careful consideration to the affirmative defense appearing in the answers of all defendants that the plaintiffs should be denied relief because they come into court with unclean hands. We have produced some evidence which relates to that issue and to the counterclaim allegations. We believe that the evidence produced establishes that the plaintiffs, prior to the filing of the complaint and thereafter, granted and offered to grant license contracts covering the patent in suit which contained a provision that the licensee was obligated to pay royalty upon all of the unpatented product produced whether or not it was manufactured by the apparatus of any of the patents licensed or in accordance with the method covered by any of the patents licensed.

We believe that the evidence establishes that there has been a continuing representation by the plaintiffs to the public, to the trade, to the defendants, and to this court that the patent in suit was valid and covered triple point operations.

We believe that there is evidence that establishes that the plaintiffs knew that the patent in suit was invalid and did not cover triple point operations, from the testimony of Mr. Cole and Dr. Jones. We believe that there is evidence that, although the plaintiff has continuously asserted the patent covered triple point operations, it knew that it did not do so. [2091]

There is evidence, we believe, that establishes that the alternatives given by the plaintiffs to the defendants, even after the filing of this suit, were three in number: One,

to stop operating, to stop making solid carbon dioxide blocks, an unpatented product; two, to take a license contract containing a provision obligating the defendants to pay royalty upon the unpatented product whether made in accordance with any of the plaintiffs' patents or not; or three, to pay the expense of this litigation.

This evidence, we believe, is all pertinent to the affirmative defense of unclean hands. Mr. Morris has told your Honor that he has been unable to find any decision which has held that the issue of a license contract containing a provision such as I have referred to amounted to such unclean hands as to induce the court to deny relief to the plaintiffs. We wish to state to the court that we have been unable to find a case of that nature, also. The court is very familiar with the doctrine expressed in Morton Salt case and the line of similar cases. He has referred to them several times during the progress of the trial. And since we have not found a case which holds that the provision of a contract such as this constitutes unclean hands, it would appear, possibly, that to so hold is an extension of the doctrine of the Morton Salt and related cases. Possibly the court will not wish to make any extension of that doctrine, if such an extension is required. However, we feel that there is [2092] evidence relating to this issue and we do not wish to withdraw it or the last affirmative defense. We do wish, however, to have a final determination of this case upon all of the issues presented. We would feel extremely badly were this court to decide that the plaintiffs came into court with unclean hands and therefore plaintiffs should be denied relief but would be free to come in tomorrow and file a new complaint if it could show that it had purged itself, and did not consider the evidence offered by

the plaintiff, which I understand would be offered in such an event and which it has already offered on this question of whether the plaintiff, if guilty of unclean hands, has purged itself.

The point of my remark upon that is this: In behalf of the defendant, the George Pepperdine Foundation, I wish to withdraw all objections heretofore made to the introduction of all evidence by the plaintiff directed to showing that, if guilty of unclean hands in the past, it has purged itself now, which objections were made on the ground that the acts asserted to constitute purging were performed after the filing of the complaint in this case. In other words, if the plaintiff has purged itself, we wish the court to find that in this case and not have the plaintiff re-file the case and, on the same evidence, submit that it has purged itself, and then have the parties to go through another lengthy trial on the issues of validity and infringement. For that reason the defendant George Pepperdine Foundation [2093] withdraws the objection I have stated, on the ground I have stated, to the evidence I have defined.

* * * * *

Before I get to that, may I state that in our defense of laches, affirmative defense which appears at Section XII of defendant George Pepperdine Foundation answer and the same section of the answer of the other defendants, we wish to strike from the Pepperdine answer that portion which commences after the semicolon in line 27.

The Court: After the words "by the prior owner thereof;"?

Mr. Foster: Yes, your Honor.

Mr. Morris: I wonder if counsel will suspend until I can turn to that in my copy?

The Court: Yes, sir.

Mr. Foster: Yes, indeed. Perhaps it would be better for the record, your Honor, if I read the part that we ask to be stricken and that we will not rely upon.

The Court: Yes.

Mr. Foster: The following provisions of Sections XII of both answers: "that the failure of the Plaintiffs, and each [2094] of them, to notify the prior owner of said presses of the claim of infringement asserted in the Further Amended and Supplemental Complaint was unreasonable and lulled the prior owner of said presses into a sense of security and a conviction that the construction and operation of said presses, and each of them, were not a violation or infringement of any patent of the Plaintiffs, or either of them; that some of the Defendants, believing in good faith that the Plaintiffs had no patents or other rights which could be or were violated or infringed by said presses, or either of them, or their operation, and in reliance upon the acquiescence of the plaintiffs, and each of them, to the continued use of said presses, and each of them, purchased said presses from said prior owner thereof, made large investments in connection with the business in which said presses were employed, and in other respects changed their position;"

And likewise the language appearing a few lines later: "and guilty of such laches as constitute a bar to the maintenance of,"

The language in the answer of the remaining defendants Mr. Miketta will read. It is somewhat different.

Mr. Miketta: In paragraph XII of the answer for Natural Carbonic Products Company, Inc., and Natural Carbonic Products the matter to be stricken starts at line 22, after the semicolon, reading: "that plaintiffs' failure

to notify the prior owner of said presses was unreasonable and lulled the [2095] prior owner of said presses into a sense of security; that the defendants, believing in good faith that plaintiffs had no rights which could be violated or were violated by said presses, their construction and their operation, and relying upon plaintiffs' acquiescence to the continued use of said presses, purchased said presses from the prior owner thereof, made large investments in connection with the business in which said presses were employed, and otherwise changed defendants' position;"

Then, upon page 9 in the amended answer, in lines 3 to 5, this statement: "and that the aforesaid and other surrounding circumstances constitute laches on the part of the plaintiffs and prejudicial to these defendants,"

The Court: It may be stricken in each case. [2096]

* * * * *

Mr. Miketta: If the court please, the defendant Natural Carbonic Products, Inc., and the individuals forming the partnership Natural Carbonic Products concur in the statement of counsel for The Pepperdine Foundation, and ask that their objections to the exhibits pertaining to the various contracts entered into by the plaintiffs with their licensees be withdrawn. [2100]

* * * * *

Mr. Miketta: May the court please, there is just one point, if we can leave the universal and global aspects of this case and get down to the dollars and cents. Inasmuch as each of the parties has been paying during the course of this trial one-half of the reporters' per diems and one-half of the cost of the court's copy of the record, I assume that plaintiffs will stipulate, as is customary, I believe, that the reporters' fees and costs are to be taxed as costs at the conclusion of this case.

Mr. Caughey: Well, within the discretion of the court. I think that is discretionary with the court. We will stipulate that, if they are taxed, that those we have already paid may be taxed against us, yes; but, as I understand it, it is discretionary with the court and I would not want to enter into a stipulation without having given the court an opportunity to say what should be done.

Mr. Miketta: Well, I always thought that it was desirable to indicate to this court if there was any arrangement made between the parties that it should be included.

Mr. Caughey: It is perfectly satisfactory if the court determines that they should be taxed as costs, that that shall be taken care of in the manner as stated. [2113]

* * * * *

The Court: Let us take one thing at a time. With regard to the interrogatories and the amendments to them which were proffered and which have been filed, it is my [2114] view that they are admissible for the purpose only of explaining and interpreting the testimony of the witnesses which have been made in that regard, and for that purpose only they will be admitted. [2115]

* * * * *

Los Angeles, California, Wednesday, June 14, 1944;
11:30 a. m.

(Parties present as last noted, with the exception of Mr. Morris.)

Mr. Miketta: May the court please, we were just going over the depositions in an attempt to agree as to what objections, if any, would be raised by plaintiffs to the introduction of the depositions in their entirety so as to obviate the necessity of taking up so much of your Honor's time in reading the entire depositions into the

record. Apparently the plaintiffs will have no objections, for example, with the exception of an objection first voiced by Mr. Lyon at the taking of the deposition, which appears on page 22. Will you state your objection, Mr. Caughey?

Mr. Caughey: Yes; that is correct. The objection to that is that there is no foundation and it is not material. That is the affidavit and the sketch which were referred to in court here and which were, I believe, marked for identification. There is no testimony as to it and the witness merely said he made the affidavit, and that is all that was said about it. Well, I can't see that that is material.

The Court: Was that an affidavit that the device they made was in accordance with the drawing; is that the one you mean?

Mr. Caughey: That is the affidavit which was attached to defendants' Exhibit R, and the letter which was also [2131] attached. It is in the form of a letter and it is subscribed and sworn to.

Mr. Miketta: It is executed by Mr. Eppenbach and is part of Exhibit R, your Honor. I think that affidavit states that the machine actually made was in conformity to the sketch which is also attached to Exhibit R, and I think the deposition itself confirms the statements appearing in that affidavit executed by Mr. Eppenbach and attached to Exhibit R.

The Court: Well, but you can't have two bites at the cherry. He is on the stand and if you want him to testify, you ask him questions, and this affidavit that he made cannot be used in lieu of his testimony. If he has stated that this device which is attached and bears his initials is substantially in accordance with the device that

he made at the time and referred to in these books of account, then that is perfectly good testimony. But the motion to reject the affidavit is proper and should be granted, because that adds nothing.

Mr. Caughey: That is my point.

The Court: Your point is correct. The objection is sustained.

Mr. Miketta: On page 27, we have agreed that in page 26, in the second line of the answer to question 84, both plaintiffs and defendants agree that "cloth" head should read "cross". [2132]

The Court: It may be so stipulated and correction may be made by the clerk.

Mr. Mocketta: On page 27, we have agreed that in question 90, line 1, the word "combust" should read "compress".

The Court: I went to the dictionary to find out if the word "combust" had a meaning that I had never heard of. The clerk may make that correction also.

Mr. Miketta: There are no objections, your Honor, to the deposition until we come to page 30, at which time plaintiff desires to voice an objection.

Mr. Caughey: Mr. Lyon placed an objection on the record as to the extent to which the deposition went, his point being that the deposition, as taken, exceeded the order. That is the objection Mr. Lyon made. Whatever your Honor desires is entirely satisfactory with me.

The Court: It was my understanding in the order that was applied for that: "Defendants may take depositions of Edwin G. Eppenbach and other witnesses having knowledge of the facts with regard to records of Eppenbach, Inc., comprising defendants' Exhibit R for identification attached hereto, and such other records in the

possession of Eppenbach, Inc., as are material to the issue to which said Exhibit R pertains, said depositions to be taken before a Notary at New York" * * *.

My understanding in the signing of that order was that any testimony which would explain these entries in these [2133] books was material. Now, that would certainly exclude some questions which I noticed in here as to how the machine functioned. On that we had testimony in court here and we were not going over all that again. I thought that Mr. Lyon's objection was sound that the testimony in the deposition must be confined to that testimony which would explain this Exhibit R, being various entries in the books. Naturally, if it says here "machine work on a certain thing," testimony could be introduced to show what that thing was; but testimony could not be introduced to show authoritatively how that machine worked, because that was not the purpose of the deposition, and the deposition was limited to this Exhibit R. Therefore I think that that portion of the objection is sound, and it arose in answer to this.

Mr. Miketta: The questions are 103 and 104, I think, your Honor, and are objectionable in view of your Honor's statement.

The Court: I think so. Question 103 I noticed was not objected to, but I think it is within the scope of Mr. Lyon's objection and that we should consider that he is making objection to both those questions: and therefore the question 103 and the answer, and question 104 and the answer, the motion is granted to strike those questions and answers.

Mr. Miketta: That is as far as we have gotten in our preliminary conference regarding the objections, your Honor. I do not know whether plaintiffs have any other objections or [2134] further objections to the introduc-

tion of this deposition, without further changes, with the exception of a correction appearing on page 66 which we have stipulated can be made. In the last line, "Natural Carbonic" should read "Liquid Carbonic."

The Court: It may be so stipulated, and the clerk will make the correction and initial it.

Mr. Caughey, what—

Mr. Caughey: There is another objection on page 45, your Honor, which I wish to call the court's attention to, question 177.

The Court: "Will you tell us with what degree of success it operated?" The objection is sustained for the same reason as previously indicated.

Mr. Caughey: Yes, sir.

The Court: That question and the answer may be stricken.

Mr. Caughey: And also, question—

Mr. Miketta: May the court please, the answer to that question signifies that Mr. Eppenbach was actually present and therefore had an opportunity of seeing the machine which was actually built by him. The degree of success to which it operated may be objectionable; but I think the record should clearly show that he did see the machine; and the latter part of the answer to that question, indicating that they made a similar pyramid screen, is free from objection.

The Court: Well, but to 176 there is no objection. [2135] Your view is sound. Mr. Lyon made no objection. "Did you see that machine in operation with the pyramid-shaped screen in it?" "Yes; I saw that in operation." Now, the next question and the answer are stricken as being outside the scope of the deposition.

Mr. Miketta: Very well, your Honor.

The Court: Objection to that is sustained.

Mr. Caughey: That would also go to questions 179 and 180, would it not, your Honor—or 179?

The Court: Question 179 and the answer are stricken for the same reason.

I never have seen the questions numbered this way before. I think it is very fine. You see, they number the questions and they do not number the lines of the page.

Mr. Foster: That is a procedure that has been followed a long time in interference practice, that they require that in the Patent Office.

The Court: That is a very good idea. We do not provide for it in our Rules because it would be a little confusing, but it is very convenient for us here.

Mr. Caughey: There may be other places, your Honor, but I think your Honor has indicated the limit and we can bear that in mind.

The Court: I am perfectly sure, within the scope of my ruling.

Mr. Caughey: Yes. [2136]

The Court: If you find something, if when we convene Friday you will call it to our attention, we will just stipulate it out.

Mr. Caughey: Otherwise I have no objection to it remaining.

The Court: Then we may proceed with that understanding.

Mr. Caughey: There is only one other question. If Mr. Martin was recalled—and you may say he was recalled back at the deposition—and his testimony is taken, I do not think what he said is going to affect the issues here very materially, except that perhaps it shows his

confusion as to some things which he was confused about on the stand, although an objection—

The Court: If you want to keep it in, you can do it.

Mr. Caughey: I think I will keep it in.

The Court: Very well. Then it will all be admitted, both Eppenbach and Martin, and we will mark it in evidence as the defendants' next in order.

Mr. Foster: And may there also be received the exhibits that are marked for identification in the deposition, as Exhibits of the same letters and numbers?

The Court: They may be received into evidence as exhibits attached to the depositions and referred to therein, with the exception of the affidavit which is out.

Mr. Foster: Yes.

Mr. Miketta: That is correct, your Honor. [2137]

Mr. Foster: And that will apply for the defendant Pepperdine Foundation?

The Court: Both.

Mr. Caughey: And that affidavit includes the accompanying sketch, of course.

Mr. Miketta: I think that is true, your Honor.

The Court: Unless the sketch is referred to in the evidence, then the sketch goes out also.

Mr. Caughey: No; it is not.

Mr. Miketta: May we withdraw the letter and sketch, then?

The Court: The letter and sketch may be withdrawn and the clerk may take your receipt for it.

Mr. Miketta: And Exhibit R will now be introduced into evidence as defendants' exhibit next in order as attached to the deposition.

The Court: As attached to the deposition.

Mr. Miketta: Thank you, your Honor.

The Court: In other words, the next number includes the depositions of Eppenbach, Martin, and the Exhibit R, except the affidavit and the sketch attached to the affidavit which are permitted to be withdrawn.

Mr. Caughey: And there are also, of course, additional pages which were placed in evidence during the taking of the deposition, as I understand it, over and above.

The Court: They all go in as a part of that exhibit. [2138]

Mr. Caughey: Very well.

The Court: They are those additional pages that were requested by the plaintiffs.

Mr. Caughey: Yes, sir. [2139]

* * * * *

The Court: You are only speaking about theoretic liability. You do not mean to say that the fact that the George Pepperdine Foundation owned 65 percent of the stock of the defendant prior to a given date would make the George Pepperdine Foundation liable during the period prior to its taking active charge?

Mr. Caughey: I am not so contending, your Honor. [2185]

* * * * *

Mr. Caughey: In so far as the prior art is concerned—I am speaking now about not only prior art in so far as knowledge of the prior art, but also of the patents—I think they can be grouped as far as what I have to say is concerned. Admittedly there were in the prior art patents showing presses of various kinds. We are not contending and have not contended that any element of the combination of the patent in suit is new and novel in and

of itself. As a matter of fact, in a combination patent all the elements are presumed to be old, and if there is any novelty in any one element, then it can be taken care of in a subordinate claim and as a novel element. We are not so contending.

But we are dealing with an art here, may your Honor please, the carbon dioxide art, in which the men skilled in that art knew about the use of carbon dioxide gas, the compression of the same, condensing of the same into a liquid, and the subsequent solidification of the same and the pressing of the same into blocks. They knew about [2205] pressures in chambers, triple point pressures, from Slate prior to the patent in suit. They knew about the snow tank operations, admittedly, in the prior art. They knew about various laboratory devices. They knew about what had been taught them in universities and schools. They knew about condensing of CO₂ into liquid; in the use of nozzles; the necessity for outlets and inlets into the chamber, and so on. There isn't any question about that. [2206]

* * * * *

We are not claiming here that we have any great basic invention. The patent defines it as "an improvement", and it is an improvement; and the patent even says, in the first line of the specification, in the first paragraph, in the third line: "and has for its object to provide a simple efficient apparatus". And that is what it is. [2208]

* * * * *

Mr. Caughey: * * * [2236]

Now, as I stated previously, if your Honor finds that in using the triple point method, that that is not the equivalent of a step, one step in the claim, which ad-

mittedly has to do with the snow ice, and that is the question of timing, when you put the liquid in and when you stop putting it in—your Honor is familiar with it—if your Honor does not find that is an equivalent, then that claim is not infringed. That is our position there, without any question. [2237]

* * * * *

The Court: Now, let me interrupt you, because I want to get those things clear in here. It is my understanding of the law of patents that you cannot get allowed certain claims for a device, apparatus claims for a device, and then follow the apparatus claims with an alleged method claim which alleged method claim is purely functional, simply describes how the machine which you have indicated in the prior apparatus claims functions; that claim is no good.

Mr. Caughey: That is correct. [2238]

* * * * *

Mr. Caughey: As I see it, those steps which appear at the end of the claim, beginning with the word “mechanically”, I would say that the method of producing blocks of solidified ice, eliminating that part of it as a preliminary step—

The Court: Until you get a full chamber?

Mr. Caughey: But the particular steps which were in addition to those which, we will say, were in the prior art and which were known in the art, that is, the snow ice method was known in the art, and so was the triple point method—“mechanically applying pressure to the mass of solidified gas in the chamber while the chamber is closed to press the mass into a dense block of solidified gas, and finally opening the chamber to atmosphere and

removing the completed block therefrom." Those were the additional steps. [2239]

If your Honor can't find invention in those steps, then that claim is not valid, admittedly.

* * * * *

The Court: Well, now let me see if I understand you clearly. There is no invention in pressing this snow from one side, from two sides, from the top and from the bottom with a piston.

Mr. Caughey: In and of itself.

The Court: In and of itself; there is nothing in that.

Mr. Caughey: No. They did it.

The Court: That has been known from time immemorial, not only in connection with this and in connection with many presses, but it has been known for many years in connection [2240] with CO₂.

Mr. Caughey: They pressed CO₂ in hydraulic presses after they took it out of the Martin snow tank. There isn't any question about that.

The Court: Yes. The only thing, then, that was inventive in nature, according to your contention, is that that operation was performed within the same chamber as that in which the snow was created, so that it did not have a chance for severe sublimation by exposure to the atmosphere, is that correct?

Mr. Caughey: That is right; and did away with tamping such as the Martin snow tank has. That is correct.

* * * * *

[Endorsed]: Filed May 2, 1945. [2241]

[Title of District Court and Cause.]

DEPOSITIONS TAKEN ON BEHALF OF THE
DEFENDANTS

EDWIN G. EPPENBACH,

residing at Manhasset, Long Island, called as a witness in behalf of the defendants, herein named, having been first duly sworn by the Notary Public, testified as follows:

Direct Examination

By Mr. Hoxie:

Q. 1 You are Mr. Edwin G. Eppenbach; is that right?

A. That is right.

Q. 2 Where do you live, Mr. Eppenbach?

A. Manhasset, Long Island.

Q. 3 What is your place of business?

A. 44-02 Eleventh Street, Long Island City.

Q. 4 What is the name of the company?

A. Eppenbach, Incorporated.

Q. 5 That is your own company?

A. That is my company.

Q. 6 How long has that company been in business, to your personal knowledge? A. 30 years.

Q. 7 In the same location?

A. Yes, except that we still have—we still have the old location. But 44-02 is the new business. But the other location is still intact. We still operate that as a shop. That is 45-10 Northern Boulevard. [4]

Q. 8 That was the location of the shop in 1925; was it?

A. That is right. The same shop is still there.

(Deposition of Edwin C. Eppenbach)

Q. 9 Did you have this office on Eleventh Street in 1925?

A. No. The office was at 45-10 Northern Boulevard.

Q. 10 What is the general nature of the business or what has it been since 1925?

A. We build machinery.

Q. 11 You do not yourself manufacture any products for sale; is that correct?

A. Yes, we do. Machinery products.

Q. 12 In 1925 what was the approximate size of your organization?

A. In 1925 I had about 20 men—24 men.

Q. 13 What was your position there?

A. I was the secretary and treasurer.

Q. 14 Were you taking an active part in the business in 1925?

A. Yes. I was half owner of the business.

Q. 15 Were you active in the management?

A. Yes; full time.

Q. 16 Do you recall at any time in the course of your business making any equipment in which liquid carbon dioxide was expanded to make what is called snow and then that snow [5] *and then that snow* was mechanically compressed to form blocks, now called dry ice?

A. Yes.

Q. 17 For whom did you make such equipment?

A. We started the work under the name of Prest Air Corporation, Long Island City, and later on under the new name, Dry Ice Corporation of America.

(Deposition of Edwin C. Eppenbach)

Q. 18 Was it the same business concern under both names? A. Yes.

Q. 19 Where were they located; do you recall?

A. Prest Air was located in Long Island City, in the old Borough Hall Building, was it not?

Mr. Martin: Yes.

A. (Continuing) You know the old Borough Hall Building, the obsolete building.

Q. 20 With whom did you deal in connection with your transactions with Prest Air Corporation? Can you name some of the persons, if not all?

A. Of course, I dealt with Mr. Martin, Mr. Gray, Fitzpatrick, Black. There were two other gentlemen.

Q. 21 Give us your best recollection?

A. I cannot remember.

Q. 22 Did you have any personal connection with those [6] transactions? A. Yes.

Q. 23 What was the nature of that?

A. I assisted in the design of the equipment, the experimental machine.

Q. 24 Were several machines built?

A. There were six machines built. I built three and had a friend of mine, Mr. Purvis, from Brooklyn, build three. There were six built in all.

Q. 25 The one you speak of as the experimental machine, was that the first one?

A. That was the first one. That was built under my supervision.

Q. 26 Did you work with the gentlemen you have named in connection with the design of that first machine? A. That is right.

(Deposition of Edwin C. Eppenbach)

Q. 27 Did you personally have anything to do with the making and assembly of the parts of that machine?

A. Yes. We had both a pattern and a machine shop. We made the wood patterns, sent them out to a foundry right across the street, got the castings and machined them.

Q. 28 Did you assemble the machine?

A. We assembled the machine. [7]

Q. 29 Did you witness the machine in operation?

A. Yes.

Q. 30 Where was it operated?

A. We set it up at the Liquid Carbonic plant in Mas-peth.

Q. 31 Do you recall when that first machine was made?

A. To be frank with you, I refreshed my memory on it. It was 1924.

Q. 32 What do you have that enables you to refresh your recollection?

A. This duplicate bill book.

Q. 33 This book that you have produced here today?

A. That is right.

Q. 34 Did you at the time of those transactions with Prest Air Corporation keep any records of these transactions?

A. Yes. Every bill that we sent out we made a duplicate in this book (indicating).

Q. 35 What is that book called?

A. "Duplicate bill book No. 1."

(Deposition of Edwin C. Eppenbach)

Q. 36 That is a large bound book of several hundred pages; is it? A. It has 472 pages..

Q. 37 Those pages are serially numbered and stamped with [8] numbers?

A. That is right. They are printed numbers (indicating).

Q. 38 Does that book relate to your transactions with a number of different customers other than Prest Air and Dry Ice Corporation?

A. That has a duplicate bill of every bill for every company in 1924 and 1925 that we did business for.

Q. 39 In the front of that book is there an index alphabetically arranged of the different accounts?

A. That is right. You will see that the companies like the Bell Telephone, Metropolitan Electric, Cities Service; it was Henry L. Doherty's companies. All those companies were entered into that book. [9]

* * * * *

Mr. Hoxie: Very well. Subject to production of a photostatic copy of the index page covering accounts under the initial letters "P" and "Q", I will note on the record that for the Prest Air Corporation the index has reference to pages 194-240-412. I am just showing what the index shows.

Mr. Lyon: I would like, if you are going to produce any pages in the index, I would like you to produce the page on which the Dry Ice Corporation would appear, if any.

The Witness: There is none listed under "D". It is all listed under Prest Air. But it was carried over. [14]

* * * * *

(Deposition of Edwin C. Eppenbach)

Mr. Hoxie: We will provide a photostat of that. I note that looking at page 412, which is referred to in the index under the listing of "Prest Air Corp.," that page 412 is headed "Dry Ice Corp. of America."

The Witness: It is listed back a bit further than that, too (referring to book).

Mr. Lyon: Will the record show that the witness pointed to page 230. [15]

* * * * *

Q. 45 Now, pausing at that point, Mr. Eppenbach, will you tell us what the practice was in making entries in this book with respect to the time of entry?

A. We would make a duplicate of the bill that was mailed to our customer the day that it went out. [16]

Q. 46 Does this book contain in some considerable degree the items of the billing?

A. Yes. The wording on the billing would be identical to this (indicating).

Q. 47 Did you make these entries yourself?

A. In some cases I did, but I had a bookkeeper working for me at the time.

Q. 48 How close was your own connection with either the recording of these entries or any use of them at the time they were entered?

A. They were under my jurisdiction. I supervised the entries.

Q. 49 Did you have occasion to see them from day to day?

A. We had a small office and I could not help but see the entries being made.

(Deposition of Edwin C. Eppenbach)

Q. 50 Was it a book that you made use of in the conduct of your business?

A. Yes. The reason why we had this duplicate bill book, so that some customers would want work done of an identical nature a year or two later and we could refer back to the work done.

Q. 51 Did you make the entries from the same data that you used in sending the bills? [17]

A. Yes. The entry in this duplicate bill book was made from the billing that went out and was almost identical to the billing.

Q. 52 Was it the regular practice in the year 1925, say, to record in this book all of your billings?

A. Well, it was my practice. I do not do it any more, but at that time it was what I considered good book-keeping.

Q. 53 Were these entries with respect to transactions with Prest Air Corporation and Dry Ice Corporation of America made in the regular routine of entering billings in this book?

A. Done in the regular course of business.

Q. 54 Did you also make some entry in there to show when the bill was paid?

A. Yes. There is a stamp with a date inserted when the bill was paid.

Q. 55 Taking page 194, for example, it deals with transactions in 1924. I notice the first one has a stamp "September 15, 1924;" is that correct?

A. That is correct.

(Deposition of Edwin C. Eppenbach)

Q. 56 Is that an example?

A. That is an example.

Q. 57 Can you tell us when the dates were entered into the book in relation to the time when the billings occurred? [18] What does the date mean in the lefthand column?

A. That means the date of the bill that went out. The stamp is the date when the bill was paid.

Q. 58 Those dates were entered at the time the billing was made?

A. That is correct. And they are initiated "E.M.," meaning Etta Minor was the bookkeeper at the time. She is married. I do not know her married name now. At that time it was Etta Minor.

Q. 59 Did she enter them from information that you knew about at the time?

A. That is correct.

Q. 60 What can you say as to the correctness of the entries at the time they were made?

A. If they were not correct, somebody would get fired, I guess.

Q. 61 Did you have knowledge at the time by which you could tell whether or not the entries were correct?

A. Yes, I checked the duplicate bill and looked to see that the record was correct.

Q. 62 Were you at that time familiar with the work which was covered by the billing? [19] A. Yes.

Q. 63 Was it a part of the regular duties of this bookkeeper to make these entries? A. That is correct.

(Deposition of Edwin C. Eppenbach)

Q. 64 Where has that book been since the year 1925?

A. Been in our office ever since.

Q. 65 Did you produce it today from your regular files?

A. That is correct. The only time that it was not in our office was when those photostats were made.

Q. 66 By "those photostats" do you refer to this collection of photostats which I have before me, to which is annexed what appears to be a carbon copy of a letter on the letterhead of "Eppenbach, Inc." (indicating)?

A. That is correct.

Q. 67 I show you that letter and ask you whose signature appears there? A. That is my signature.

Q. 68 "Edwin G. Eppenbach"?

A. Edwin G. Eppenbach.

Q. 69 Did you sign that at or about the date which appears on that letter? A. I did. [20]

Q. 70 There is also attached to that a sketch?

A. Yes. It was supplied to me by Mr. Martin.

Q. 71 There are some initials in one corner of that.

A. My seal and initial.

Q. 72 The initials "E. G. E." are your initials?

A. Those are my initials.

Q. 73 In your handwriting?

A. That is correct.

Q. 74 And is that the seal of your company?

A. That is correct. [21]

* * * * *

(Received and marked Eppenbach Deposition Exhibit 1 for Identification.) [23]

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Q. 75 You have referred to Page 194 in that book, relating to transactions in 1924 with Prest Air Corporation.

Mr. Hoxie: I will say that we are not concerned with any transactions in 1924. But, of course, Mr. Lyon may examine that record.

Q. 76 I will ask you, Mr. Eppenbach, when you or your bookkeeper made these entries that appear at the bottom with the number of pages, indicating a continuation to some subsequent page?

A. When were they made?

Q. 77 Yes.

A. When one page was full and they had to find another page, they would find a page and then they would say, continued, in this case, on Page 208.

Q. 78 That is because other accounts came in in intervening pages?

A. Came in in between, that is right.

Q. 79 Turning to Page 208, does that continue it?

A. 208, 209 is continued to 210; 210 jumped to 230. 230 went to 231. 231 went to 232. 232 went to 233. 233 went to 234. 234 went to 235. 235 went to 237. It jumped 236.

Q. 80 With reference to Page 235, can you tell us [24] when the account for the year 1924 ended?

A. The last billing was on December 22nd.

Q. 81 That appears on Page 235?

A. Page 235. The first billing in 1925 was January 18th.

Q. 82 Refreshing your recollection, if you need to, by a reference to this book, beginning with Page 235, can

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you tell us what was the nature of your first transaction with Pressed Air Corporation in 1925?

A. The first billing was "Alter piston pattern as per instruction."

Mr. Lyon: Let the record show that the witness is reading from the book, and I would like it to appear whether he has a recollection of that transaction or is merely repeating the entries in the book?

The Witness: I distinctly remember what the alteration was on those patterns. I also distinctly remember this entry down here, "One (1) pattern for a cylinder extension."

Q. 83 Can you tell us from your recollection, Mr. Eppenbach, briefly but enough to indicate its nature, what kind of machine, if any, you made for Pressed Air Corporation in 1925? [25]

A. We made a compressor type of machine that was designed to compress dry ice into a square cylinder; possibly between three and four inches square.

Q. 84 What did that compressing machine consist of?

A. It consisted of a long cylinder that was split in half, bolted together; piston, cross head connecting rod, frame, mountings, bearings.

Q. 85 What was the cross section shape of that cylinder in the piston?

A. Square. If I remember right, it was about three and a half inches square.

Q. 86 What provision was there for introducing any material into that cylinder?

A. We had a side entry for the CO₂ gas and an escape from the top which we had a cylinder mounted

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with a canvas bag. The gas going through the cylinder produced a snow-like material.

Q. 87 Where was that snow material produced?

A. It was produced right inside of the cylinder; the steel cylinder; not the wood cylinder. We had a wood chamber, barrel type on top of the machine.

Q. 88 This was the first machine? [26]

A. That was the first or experimental machine. Later we found a metal screen to be satisfactory. We eliminated that wood hopper.

Q. 89 After this snow formed in the cylinder, what was done with it?

A. It was compressed by the piston action.

Q. 90 The piston would be driven forward to compress the snow in the cylinder; is that correct?

A. That is correct.

Q. 91 Then what would happen after the compression?

A. We had a retarding device on the end to hold it in and in the next block would then come along and that would push the completed block out.

Q. 92 Was it open at one end?

A. It was open at one end.

Q. 93 What was the nature or construction of that retarding device that you refer to?

A. We made a number of them. The last one we had a wedge-shaped retarding device with—

Q. 94 Was that a sort of choke?

A. That would choke it. That would retard the block without an actual stop. Using the block as the choke, [27] forcing it through this wedge-shaped member.

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Q. 95 Is this correct: That the snow formed in the cylinder would be compressed against this choke arrangement but would be delivered out through it?

A. That is correct, yes.

* * * * *

Q. 96 Will you tell us what the situation was with respect to removal of the compressed snow from the cylinder?

A. The snow would itself push out the preceding block onto—we had a flat table arrangement off the end of the cylinder. It was pushed right out (indicating).

Q. 97 That would leave some snow, compressed snow in the outlet; would it?

A. In the machine, yes.

Q. 98 Would that seal up that discharge?

A. That would seal up the discharge.

Mr. Lyon: Same objection.

Q. 99 When the plunger was withdrawn after one compression stroke, what would happen?

A. They would give it another shot of gas, which developed snow in the chamber, and that operation would [28] be repeated.

Q. 100 Another compression stroke?

A. That is right.

Q. 101 What would be the effect of that second compression stroke on the material that was in the outlet?

A. That would force out the material.

Q. 102 Was any change made at any time in 1925 to your recollection with respect to the removal of the compressed snow from the cylinder?

A. The first machine we experimented with various types of removal members, and we found that the choke

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type would work very satisfactory and eliminated the necessity of taking the original choke member off; that the wedge-shaped piece seemed to have packed the snow tight enough so that we would have a pressure chamber there sufficient to hold back any pressure that was developed in the cylinder. You get a packing condition. [29]

* * * * *

By Mr. Hoxie:

Q. 105 Did you see that machine in operation, Mr. Eppenbach? A. Yes.

Q. 106 It was after you had made it and delivered it?

A. That is correct.

Q. 107 How soon after that with respect to the year 1925?

A. That was in the year 1925. We set it up at the Liquid Carbonic plant in Maspeth.

Q. 108 When that carbon dioxide was introduced into the cylinder, was all of it converted into this snow?

A. No. There was a discharge of gas through the top or we had an outlet at the top of the cylinder.

Q. 109 What was the form of that outlet?

A. A pipe.

Q. 110 You have referred to a canvas bag or something of that sort. What part did that play in the operation of the machine?

A. Well, in the first experimental machine we had a canvas bag in a wood cylinder at the top of the machine—

Q. 111 To connect it with the cylinder in some way?

A. It was connected with the metal cylinder. Snow [32] would be made inside the metal cylinder and the gas would come through the canvas bag.

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Q. 112 Rise into this chamber above?

A. Rise in the chamber above.

Q. 113 Was any other expedient employed for letting gas escape from the cylinder when the snow was compressed?

A. Yes. We had that pipe with a valve on.

Q. 114 Was that separate from this other chamber?

A. Separate from the wood outlet.

Q. 115 You referred to three machines which you built. In what year were the second and third machines built? A. 1925.

Q. 116 Are the transactions relating to all those three machines recorded in this book which you have before and which you have referred to?

A. Yes. The billings are right in this book.

Q. 117 What was the nature of the other two, second and third machines in relation to the first machine?

A. In appearance they were practically the same. The advantages of the experiments of the first machine was incorporated in the second and third.

Q. 118 Did you see the second and third machines operate? [33] A. No, I did not.

Q. 119 Your observations were of the first machine?

A. First machine. They were shipped to the liquid Carbonic, the same as the first one. But I did not actually go out there.

Q. 120 Have you any knowledge of what was done with the blocks of dry ice made in that first machine or in either of the second or third machines?

A. Yes. I personally sold Schrafft's ice cream store in New York, I believe, the first dry ice that was sold.

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Q. 121 When was that? A. That was in 1925.

Q. 122 Did you do any manufacturing operations in your own plant that had anything to do with the products made in this machine that you have described?

A. Yes. I designed the cabinets and containers that they were going to use for such products as Eskimo pie. I even built a large refrigerator that was to be used on board ship for refrigerating fish.

Q. 123 Do you recall for whom you made those cabinets?

A. That was made for the Dry Ice Corporation.

Q. 124 Will you now turn to Page 240 in that book. There is [34] an entry there, the second one on the page, under the date March 2nd. Can you tell me from your knowledge of the book what year that refers to?

A. That is 1925.

Q. 125 That first entry is "pattern for extension cylinder as per blueprint (retarding)" and the items cover labor and materials. Do you recall from reading that what that extension cylinder was?

A. Yes. That was the extension cylinder on the end of the main cylinder that we used to retard or choke the movement of the dry ice.

Q. 126 Dropping down you will find another item on March 2nd, "Machine work on piston as per sketch and instructions." What piston was that?

A. That was the main piston for the compression of the dry ice.

Q. 127 That is the piston that you described?

A. That is correct.

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Q. 128 Then the next entry is, "Machine work on stuffing box and cast-iron plate," milling and facing. What does that relate to?

A. *There was a pressure in that chamber, and we had to [35] have a stuffing box and cast-iron plate," milling and facing.*

Q. *What does that relate to?*

A. There was pressure in that chamber, and we had to have a stuffing box so that the connecting rod could operate without a leak.

Q. 129 Was that the connecting rod that drove the piston? A. That is correct.

Q. 130 The next entry is "One (1) saddle bracket pattern for snow machine." What was that saddle bracket and what was the snow machine that is referred to in that entry?

A. Well, the saddle bracket was a casting to support or hold the main cylinder onto its base or legs.

Q. 131 What is referred to as the snow machine?

A. That is the machine that we were making to make the dry ice.

Q. 132 This affair in which the snow was formed in the cylinder and then compressed by the piston, as you have described it; is that correct?

A. That is correct.

Q. 133 At the top of Page 241, under the same date of March 2nd there is this entry: "Machine work on two (2) cylinder castings, right and left." What does that refer to? [36]

A. Well, the main cylinder was split lengthwise in order to machine it out because it was a square cylinder and we had a left and right-hand side which we planed and then bolted together to make a complete square.

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Q. 134 Do these next several entries on that same page which describe various items of work relate to that same machine that you have called here the snow machine?

A. Yes. They all relate to that snow machine.

Q. 135 Will you now turn to Page 242 and tell us whether or not the entries there refer to that same snow machine that you have described?

A. They all relate to the snow machine.

Q. 136 Turn to Page 243. Will you give us the same information with regard to that after you have examined the entries?

A. They relate to the snow machine up to the billing of March 18th, where it says: "Remodel Eskimo pie cabinet."

Q. 137 What was that cabinet?

A. That was to use the snow or dry ice.

Q. 138 In what form was the dry ice as it went into that cabinet? A. It was a square block. [37]

Q. 139 As produced in this first snow machine?

A. That is correct.

Q. 140 Turning now to Page 244, will you give us the same information?

A. They were all on the snow machine.

Q. 141 I call your particular attention to the entry of April 6th, which starts with these words: "Alterations on snow machine as per Mr. Martin's instructions." Do you recall that transaction with Mr. Martin or do you recall any dealings with Mr. Martin in the course of which you received instructions for alteration to the snow machine?

A. Mr. Martin was in our plant a great deal of the time and we would change the machine in the course

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of development of it. That is the first machine, until we got it exactly the way we wanted it, and those were some alterations on it.

Q. 142 Does this list the alterations that were made?

A. At that time, yes. There were others.

Q. 143 As to Page 245, will you tell us whether or not those entries relate to that same first snow machine that you have described?

A. These are all alterations.

Q. 144 Do these entries correctly describe all the alterations made? A. Yes. [38]

They refer to alterations. It says, "Alter cylinder. alter large frame." They were changes on the first machine until we got it right.

Q. 145 I notice at the bottom of Page 245 it says, "Cont. Page 412." A. That is right.

Q. 146 On examination of the book do you find any entries relating to Prest Air Corporation or Dry Ice Corporation between Page 245 and Page 412? Will you take the trouble to run through it.

A. (Witness complies.) I see a much better customer here, the Standard Oil Company.

Q. 147 Never mind that. Just run through it.

A. No, there is nothing up to there. 412 is the next. It says here, "Continued 245" at the top of the page.

Q. 148 At the top of Page 412? A. Yes.

Q. 149 Will you look at those entries on Page 412 and tell us whether or not they relate to any transactions with Dry Ice Corporation of America which, as you recall it, had anything to do with this first snow machine that you have described or its products? [39]

A. These refer more to the cabinets.

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Q. 150 For the product?

A. For the product, yes. There are the supports to go on that ship. "Cabinet."

Q. 151 Will you refer to Page 413 and answer the same question.

A. Those refer to work on the machine.

Q. 152 Do you know whether that was the first machine?

A. Yes, that was work on the first machine.

Q. 153 I call your attention to the third entry on Page 413, Mr. Eppenbach, under date of April 21st. It says: "Casting: Cylinder castings, machine #2," and then it gives some drawing numbers.

A. That was the cylinder for machine No. 2.

Q. 154 Do you recall designating the second as machine No. 2? A. That is correct.

Q. 155 Down the page there is a reference to machine No. 3. What does that refer to?

A. That is the third machine. We built three machines altogether.

Q. 156 Refreshing your recollection from the record of this [40] Page 413, can you tell us when you were engaged in work on the building of the second and third machines? A. That is in April, 1925.

Q. 157 Are these the billing dates?

A. Those are the billing dates?

Q. 158 Was the work done by the time of the billing or did the billing precede completing of the work?

A. The work was done and billed after. The billing was done after the work was done.

Q. 159 On Page 414, the second entry refers to "Castings: Machine 2-3-4. 3 base castings and three (3)

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expansion chamber castings." That is followed by some drawing numbers. Can you tell us what it referred to as machines 2-3-4?

A. We started to get castings for the fourth machine, but—that Mr. Purvis asked to be made. We made three. Purvis made three after we had made one.

Q. 160 But you did some work on the fourth machine; did you?

A. Well, this refers to the castings. We made some patterns and we got castings for them and then they started to get the production on it.

Q. 161 Did you use the same pattern that you had made up for the first machine? [41]

A. Yes, we used the same pattern.

Q. 162 Looking at the fourth entry on Page 414, does that recall to your mind any particular aspect of the machine or its development? A. The fourth entry?

Q. 163 That reads, "Machine of flange for pipeline, make six-inch pipe thread on end as per instructions," under date of April 23rd.

A. That was the outlet pipe on the machine.

Q. 164 Where the product was discharged?

A. No, where the gas came out of. The top of the machine was a large pipe drawing off the surplus gas.

Q. 165 Turn to Page 415, the first entry is under date of April 27th and reads: "Machine work on extension castings for snow machine, 3 1/2 by 3 1/2 to 3 7/16 by 3 7/16 for machine No. 1." Do you recall the circumstances of that particular item of work?

A. That is the choke at the end of the machine. That refreshes my memory on the size of that block. It was 3 1/2 by 3 1/2. I was correct on that.

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Q. 166 What was the occasion for changing that to 3 7/16 or make it the size 3 7/16 by 3 7/16? [42]

A. That was to reduce the outlet to act as a choke or retard.

Q. 167 Speaking generally with reference to the items on Page 415, will you tell us whether or not they relate to work done in connection with either the first or the second or the third of these three snow machines that you described?

A. That is all work on the snow machine.

Q. 168 On that page and on the next page there is a reference to steel molds. Can you tell us what those molds were? A. Where does it say "steel"?

Q. 169 On Page 415, the second entry, it says: "Make two steel molds, 3 1/2 by 3 1/2 inside measurements, 11 inches long, No. 3 and No. 4."

A. Instead of using castings for the No. 3 and 4 machines, I think we were going to weld them up. Those are the extension pieces. You figure when you get them quicker. It took a certain amount to get castings in that in those days and I think that was the idea, to weld up the steel. I believe that was the reason why we welded them up, because it took so long. That is my impression of it.

Q. 170 Will you look through Pages 416, 417 and 418 and [43] tell us whether or not those entries relate to the same machines, either No. 1 and No. 2 or No. 3?

A. Yes. Those were all billings on those machines.

Q. 171 The next to the last entry on Page 418. Mr. Eppenbach, under date of April 25th, it says: "Make

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pyramid shape piece for experimental purposes on snow machine No. 1 covered with brass mesh."

A. That was the pyramid member that we used to replace the canvas that we originally had. We had that set right down above the piston.

Q. 172 What was the function of that pyramid-shaped piece?

A. That was a piece of heavy punched or corrugated steel covered with wire cloth. It was brass mesh. It was a wire cloth. To substitute for the canvas bag.

Q. 173 Did that permit some gas to escape?

A. Yes, that would permit the gas to escape and the snow would form and fall from that wire mesh.

Q. 174 Would snow form above it in some cases from the escaping gas or you mean below it?

A. No. Below.

Q. 175 And below would be where with reference to the cylinder? [44]

A. In the cylinder.

Q. 176 Did you see that machine in operation with that pyramid shaped screen on it?

A. Yes, I saw that in operation.

* * * * *

Q. 180 Is that what is referred to in the last entry on Page 418?

A. That is right. We made that for one, for the [45] No. 2 machine.

Q. 181 That has a monel screen?

A. Yes. We found that monel was better than brass.

Q. 182 The first full entry on Page 419, under date of May 1st says: "Make one (1) large hardening cabinet complete as per sketch and instructions." What was that cabinet for? A. That was to use the dry ice.

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Q. 183 Did these dry ice blocks that this machine that you have described produced, hold together all right?

A. Yes.

Q. 184 I call your attention to the third entry on Page 419 under date of May 4th. The entry reading: "One (1) snow machine delivered to Liquid Carbonic plant as per our quotation to your Mr. Martin." The dollar figure there is \$2,721.60.

A. That is correct.

Q. 185 What was that transaction?

A. Well, we made three machines in all and that is a billing on one of these machines.

Q. 186 Do you know which one?

A. That is on the second machine, because these other billings were for the first machine. [46]

Q. 187 I notice that that is stamped "Paid", but there is no date in the rectangular space in the middle of the paid stamp, but down at the bottom of the page there is a date stamp reading, "August 27, 1925." Is there any connection between those two stamp dates?

A. The check mark shown on here shows that I check it when it was paid. That was a check for me when I went through the book to see that her notations were right. That is my check and that date there on the bottom was the date on which those invoices were paid. But instead of putting individual stamps all the way down, she put the one on the bottom.

Q. 188 The invoice was May 4th and was paid on August 27, 1925; is that correct?

A. That is correct. She did that in a number of cases. The next page is the same.

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Q. 189 Do these items on page 420 and 421 relate to this same machine or to cabinets for its products?

A. Yes.

Q. 190 The same machine or machines?

A. That is correct.

Q. 191 I call your attention to the entry at the bottom of Page 420 under date of May 6th, which reads: "One dry ice hardening cabinet for Boulevard Pharmacy, 28 Boulevard [47] Avenue, Corona as per Mr. Black's verbal instructions and drawing." Does that recall any particular transaction to your mind?

A. We made a special cabinet for a drugstore, a pharmacy out in Corona for that dry ice.

Q. 192 You recall that, do you?

A. Yes, I recall that cabinet.

Q. 193 Was that dry ice that went into that cabinet made in a machine of the kind that you have described?

A. That is right. It was made in this machine.

Q. 194 Did you at the time know of the connection between the use of the cabinet and the use of the machine?

A. Yes.

Q. 195 I call your attention to a transaction May 8th entered on Page 421 reading: "One (1) storage case for Columbia Confection cream cabinet." Do you recall anything more about that transaction?

A. Well, there was another company that we made a cabinet for.

Q. 196 Similar to the Boulevard Pharmacy?

A. Similar to the Boulevard. That was the Columbia Confection. [48]

Q. 197 Page 422 seems to relate to cabinets, but I will call your attention to the entry of May 11th which

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reads: "Make showcase for Hofbrau House as per Mr. Cusack's instructions." Do you recall that particular circumstance?

A. Yes. That was a cabinet we made for the Hofbrau House on Broadway, New York. We killed the lobsters in that one.

Q. 198 Do you recall that in particular?

A. I recall that very vividly. As a matter of fact, Mr. Janssen, the manager of the Hofbrau House, gave me quite a dressing down for killing his lobsters.

Q. 199 You saw the cabinet in use there, did you?

A. Yes, that is correct.

Q. 200 Did it have dry ice blocks in it?

A. That is right.

Q. 201 Do you know how these blocks were produced?

A. They were produced in the machine out at Maspeth.

Q. 202 At the Liquid Carbonic Company?

A. That is right.

Q. 203 Were they produced on the machine you made, of the kind you described?

A. That is correct. [49]

Q. 204 What was the circumstance as to the killing of the lobsters; too much cold?

A. No. We were primarily interested in not having too much cold in that cabinet and it did not occur to us that the CO₂ gas was giving off—rather, the gas was giving off a CO₂ gas and the lobsters needed oxygen, and when I went there after the theatre that night, the lobsters were dead. That was a tough one.

Q. 205 You had some trouble on that account, did you?

A. Well, they had an expression at that time that "Janssen wants to see you." It was quite a well-known expression on Broadway, and when I got to the door,

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the doorman says: "Janssen wants to see you and be careful."

Q. 206 He meant it that time, did he not?

A. He sure did.

Q. 207 On Page 423, Mr. Eppenbach, under date of May 19th there is an entry: "One (1) snow machine No. 3 as per estimate sent to your Mr. Martin." The dollar value there is \$2,200. A. That is right.

Q. 208 What is that transaction?

A. That is for a snow machine. [50]

Q. 209 Was that machine No. 3 that you have referred to? A. That is correct.

Q. 210 Based on your knowledge of the keeping of these entries, when would you say that machine was delivered with reference to the date of May 19th?

A. It was delivered around that time, the 19th; a couple of days; a day or two before May 19th. The billing went out around that time.

Q. 211 What year is that? A. 1925.

Q. 212 Will you turn to Page 425. There is an entry there under date of May 26th: "One (1) snow machine as per drawings and Mr. Underwood's instruction. Price quoted your Mr. Martin"; and the dollar value there is \$2,100. What was that transaction?

A. I think we got the No. 3 machine finished before the No. 2. I think that is the No. 2 machine. I distinctly remember building three machines.

Q. 213 I will call your attention, Mr. Eppenbach, to this fact: We have found on Page 419 a billing for one snow machine, \$2,721.60, and then on Page 423 a billing for one snow machine No. 3 in the amount of \$2,200, and on Page 425 a [51] billing on May 26th for one

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snow machine in the amount of \$2100. Does that cover all three machines?

A. That is correct. Now, the reason why we put a billing through of \$2,721.60 on May 4th was that we added up all the billings on that snow machine to date and found out that that was the amount of it, and the Dry Ice Corporation at that time asked me render such billing on that. Then based on that we gave them a quotation for the next two. We reduced the price to \$2,200 for one and the third one was going to be \$2,100.

Q. 214 Going to the entry on May 19th which was the \$2,721.60 transaction, I am not clear as to the relation of that total figure to the various billings on preceding pages which cover individual items of work.

A. I think if you add up the billings that were vital to that machine and remove some of the experimental billings which we did at that time, they totaled \$2,721.60 which was the cost of the machine.

Q. 215 Was this a duplicate billing in some part?

A. Yes. That would be a duplicate of a number of the other billings that are in here.

Q. 216 It brought it all up to a head? [52]

A. It brought it to a head. You notice they owed me considerable money at that time, and all those billings were paid. You will notice that they are all stamped August 27th. That is when I got paid.

Q. 217 Was there some delay in payment?

A. Yes.

Q. 218 Did you have some difficulty in collecting your money?

A. At that time I had quite some billing against them and then they paid it in a lump; all the billings on August 27th.

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Q. 219 Had you had to do some soliciting in order to get the payment?

A. Well, to be frank with you, they wanted to give me stock in the corporation at that time.

Q. 220 You preferred cash?

A. And I needed cash, payroll money. And they had August Hecksher in the company at that time, a man well known in New York.

Q. 221 Did you have dealings with Mr. Hecksher in person?

A. I met Mr. Hecksher, but I did not have any detail dealings except that he made me wait until he got his money [53] from Australia before he paid me that time. He sold the rights to Australia for \$25,000, and he waited until he got that money in before he paid me off. He was what I call a tough man.

Q. 222 There are several references in these records that we have reviewed, to a Mr. Martin. Is that the Mr. Martin who is here today?

A. That is Mr. Martin. He is the gentleman. Or should I call him a culprit!

Q. 223 Going on to Pages 426 and 427, do those entries relate to this same work, either in respect of the machine or of cabinets for products?

A. On 4-26, the first billing is for this improvement in the expansion chamber.

Q. 224 What about the other entries?

A. The other ones refer to the cabinets. Iceboxes.

Q. 225 On Page 427, under date of June 11th there is a reference to "Castings on experimental work on snow

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machines as per Long Island Foundry bills to us." What was that transaction?

A. Well, the Long Island Foundry sent us a billing on some castings which was on the experimental work and they [54] were a little late in sending the bills to us. We finally got it at that time. So then we just sent the bills on to the Dry Ice.

Q. 226 That was an extra item?

A. That is an extra billing, yes.

Q. 227 Was that paid on August 27th along with all the rest?

A. That was also paid on August 27th.

Q. 228 The next entry under date of June 12th refers to "Alteration on snow screen as per Mr. Martin's instruction, making inside one-eighth plate with holes one inch centers."

A. We stretched wire monel. That was the name of it, wire monel mesh cloth over those plates. The plates were one-eighth of an inch thick and they had holes every one-eighth inch centers. That was a reinforcement plate to hold the pressure in the cabinet.

Q. 229 Was that in addition to the gas outlet through the valve pipe that you referred to before?

A. Yes. They drew that off in a pipe and that was sent back to their compressors, so there was no loss there.

Q. 230 I notice in that connection with that item of June 12th it says, "Worked stopped when 80 per cent finished." Do you recall anything in that connection? I mean apart from [55] what it indicates?

A. Well, we were drilling those plates, and I think later we found out that we could buy this corrugated steel which we put in and covered that. We had done some

(Deposition of Edwin C. Eppenbach)

work on it and when we found out we could buy the corrugated steel that was heavy enough, we discontinued working on that.

Q. 231 At the bottom of Page 427 it indicates a continuation on Page 433? A. That is right.

Q. 232 Turning to Page 433, the first entry is June 12th and it says: "Alter retarding device on snow machine for spring tension." Do you recall what that change was?

A. That was a retarding device at the end of the machine to hold back the snow so we could get it compressed.

Q. 233 Apart from your records, did you ever see the machine used without any retarding device at the end of the cylinder but with a fixed closure?

A. No. We could put our hand with a block on there (indicating). It did not even require very much pressure to stop that snow, because the snow would sort of pack in that cylinder. But if you held it back a little bit, it would pack a little tighter. [56]

Q. 234 The snow itself choked the outlet; is that correct? A. That is right.

Q. 235 The third entry on Page 433 is dated June 12th and it says: "Make new snow screen device with scraping apparatus as per Mr. Gray's sketch and verbal instructions." What was that?

A. That was an improvement over the other pyramid-shaped screen. We had a little trouble in certain conditions of the snow clogging up that screen and we found out that we could make a scraping device to free that screen.

(Deposition of Edwin C. Eppenbach)

Q. 236 Page 433 is the last one photostated in this exhibit, Exhibit R, which has been marked here as Deposition Exhibit 1. I will ask you whether there are in this book any entries beyond Page 433 relating to Dry Ice Corporation?

A. Yes. It carries to 434. It is a hardening cabinet, galvanized—

Mr. Lyon: I do not think the witness ought to read what they are.

Mr. Hoxie: I will note that one is an item of July 27th relating—referring in words to “Special hardening cabinet.” The next is dated August 11th, and refers to “One (1) galvanized box and cover [57] delivered to your Mr. Cusack,” and the third is September 10th and reads: “Trucking two machines; covering with tarpaulin.”

A. In other words, when we trucked it, we covered it up so that if it rained it would not get rusty. Then we shipped them out to the Liquid Carbonic plant. So that that is the second and third machine; yes, which we shipped in September.

Q. 237 Was that a delivery—

A. From our shop. The trucking cost to us was \$17.25. We gave them a trucking bill.

Mr. Lyon: You propose to include this page along with any other page?

Mr. Hoxie: Yes. I will have it photostated.

Q. 238 I would like to ask you, Mr. Eppenbach, if you recall the circumstances as to why that trucking took place in September when the billing had taken place some months before? Can you think back on it?

A. We got paid in August and after we got paid, why, then we shipped out the machines.

(Deposition of Edwin C. Eppenbach)

Q. 239 Had you held the machines against the bill?

A. Yes. [58]

Q. 240 Then the work done prior to that was with experimental machine No. 1; is that correct?

A. You see, we got paid August 27th and we shipped the two machines out in September. August and September. It is only the same—following month.

Q. 241 Is that the last entry in your book relating to transactions with Dry Ice Corporation of America?

A. That is right.

Q. 242 Does that include the following year, too?

Mr. Hoxie: That is just what the question was.

The Witness: That concluded my work for Dry Ice. Then I refused to do any more work because I got busy on another job. I remember that. I did not do any more work.

Q. 243 Did you do no further work after 1925?

A. No. After I delivered that, I was through.

Q. 244 I notice at the bottom of Page 434 or after the entries there are the words in red, "Closed 1925," and a double line drawn.

A. Yes.

Q. 245 There is also in red below that an entry, "1926" with no further entries? [59]

A. No further entries. You see, this is No. 1. We have No. 2 and No. 3 books that do not show any other billings for dry ice. You can look those through if you want to.

Q. 246 There have been references in a number of these entries to drawings carrying numbers. Have you those drawings, Mr. Eppenbach?

A. I would not say that we have. I doubt very much whether we have them any more. We have got some old

(Deposition of Edwin C. Eppenbach)

drawings on other jobs. It would be quite a hardship to locate these. I suppose we can, though. I mean we have got some old storage cabinets and things. We could dig through everything and look them up.

* * * * *

Mr. Hoxie: I will offer in evidence in connection with this deposition the following pages of the book that has been referred to: First, the index page under the initial letters "C" and "D"; the index page for the initial letters [60] "P" and "Q" and all pages containing entries relating to transactions with Prest Air Corporation or Dry Ice Corporation of America, as indicated by the headings at the tops of the pages. That will include all pages that have been referred to and possibly a few others. I think we have referred in some way to all of them. I can enumerate those pages. That will include, then, page 194, pages 208 to 210 inclusive; 230 to 235 inclusive; pages 237 and 239, omitting page 238, which relates to White Construction Company, and pages 240 to 245 inclusive, and pages 412 to 434 inclusive. [61]

* * * * *

Cross-Examination

By Mr. Lyon:

XQ. 246 Have you been asked to produce these drawings which were mentioned to you a few minutes ago and which are referred to in these records of your work on this dry ice machine?

A. No. They only asked me to produce this book.

XQ. 247 This book is compiled from original records, invoices and other records; was it not? A. Yes.

(Deposition of Edwin C. Eppenbach)

XQ. 248 Do you know whether or not those original records from which this book was compiled are still in existence?

A. No. We kept duplicate bills for a certain number of years. When they jammed up, we would throw those bills away. We kept the book.

XQ. 249 As I understand your recollection of what happened, you made three of these machines and one of them you delivered to the Dry Ice Company at Maspeth; the other two you kept in your possession until September 1925; is that right? A. That is correct.

XQ. 250 Did you ever actually see the second or third of those machines? After it was delivered? [63]

A. No.

XQ. 251 You never saw the second or third machine operate? A. No.

XQ. 252 Are you sure of where the second and third machines were delivered to?

A. They were delivered out to Maspeth, too.

XQ. 253 You are sure of that?

A. Yes, and Purvis' machine, all three of his machines were delivered out there.

XQ. 254 Were those of the same type?

A. Yes, exactly the same type.

XQ. 255 Did you see those three?

A. Yes, I saw those.

XQ. 256 Did you ever see them out at the—

A. Yes, I saw the Purvis machine, yes.

XQ. 257 At the Maspeth plant? A. Yes.

(Deposition of Edwin C. Eppenbach)

XQ. 258 About when were they delivered to the Maspeth plant?

A. They were delivered the same day our machines were delivered.

XQ. 259 In September, 1925?

A. That was quite a coincidence that they delivered [64] their machines the same day that we did.

XQ. 260 But you never saw them after that day?

A. No. I saw all six machines out there.

XQ. 261 You never saw them after that?

A. No. I never went out there after that.

XQ. 262 Did you see any other machines out there at the Maspeth plant at that time for making dry ice, except these six piston type machines?

A. No, I did not see any machine.

XQ. 263 Were you in the plant? A. Yes.

XQ. 264 Do you know what a snow tank is in the dry ice business? A. A snow tank?

XQ. 265 Yes. A. Well, they used—

XQ. 266 A large tank in which liquid CO₂ is introduced to form snow with a door on it so you can shovel the snow out of the tank? A. That is right.

XQ. 267 Do you know what that is?

A. Yes. [65]

XQ. 268 Did you see any of those out at the Maspeth plant?

A. No, but I saw one at the General Carbonic.

XQ. 269 When?

A. Around that same time. Because we put an ice-box up in the General Carbonic and they had a tank to make snow up there.

(Deposition of Edwin C. Eppenbach)

XQ. 270 Is that the transaction which is referred to on page 425 of this book under the date of May 26th?

Mr. Hoxie: Which entry, Mr. Lyon?

Mr. Lyon: The fourth from the top.

A. Yes, that was the one at the General Carbonic plant. We made a refrigerator box up there.

XQ. 271 For the Dry Ice Corporation?

A. Yes.

XQ. 272 At that time did you see a snow tank type of machine up there? A. That is right.

XQ. 273 I suppose the Dry Ice Corporation was making the dry ice used at the General Carbonic plant at that time; was that right?

A. They were making it in both places. Both at the General and at the Liquid Carbonic. [66]

XQ. 274 As early as May, 1925?

A. Yes, because we had—as a matter of fact, as we made it in our plant we had cylinder—the CO₂ in cylinders. We used the machine in our place to experiment with it. We changed it and modified it and we finally delivered it to the Liquid Carbonic when we had it the way we wanted it and they made the dry ice there. We made it in our plant with the cylinders.

XQ. 275 You never made any snow tank machines for the Dry Ice Corporation for use at Maspeth?

A. We made one for our own use in our own shop. We made it out of wood; a large cylinder; I remember that. We made it out of wood. To study the whole matter.

(Deposition of Edwin C. Eppenbach)

XQ. 276 But you never made any for regular use by the Dry Ice Company at Maspeth; is that right?

A. I do not think we did, no.

XQ. 277 You never saw them using one or having one at Maspeth?

A. The Liquid Carbonic? No. I will tell you what: When we first went out there—I do not know whether this is going to help either side—this is the truth of the matter—

Mr. Hoxie: Go ahead and tell the story as you [67] remember it, Mr. Eppenbach.

A. (Continuing) There was a superintendent out there that was very antagonistic towards Dry Ice and towards me and towards everybody that was with the company that would upset his little happy home out there. I had quite an argument. I spoke straight from the shoulder and I said, "Listen, don't you get so fresh. Some day this will be like the tail wagging the dog and Dry Ice may be running Liquid Carbonic," which is exactly what happened, see. He had to put his tail between his legs quite a few months later when August Hecksher and some other people came in and bought Liquid Carbonic, and he was finally working for Dry Ice more or less.

XQ. 278 In these machines that you made for Dry Ice, the three machines that you made and the other three that, what is his name?

A. Edward Purvis & Sons.

XQ. 279 P-u-r-v-i-s?

A. Purvis.

(Deposition of Edwin C. Eppenbach)

XQ. 280 (Continuing) Made the machines, were capable of making a solid block of dry ice about $3\frac{1}{2}$ by $3\frac{1}{2}$ by 8 inches, were they not?

A. They came out about 8 inches long, yes. [68]

XQ. 281 Did you ever make any equipment for the Dry Ice Corporation in which they could make blocks 10 by 10 by 10? A. No.

XQ. 282 Did you ever know of their having any such equipment?

A. I have seen 10 by 10 blocks and I believe they were made in—the snow was shoveled out of this cylinder and put into hydraulic presses, if I remember rightly, a compressor block.

XQ. 283 Did you see that done?

A. I may have seen it. I just do not recall whether I did see that done or not, but I distinctly remember in my mind those blocks, because we used those blocks to refrigerate that ship to Bermuda. I built the refrigerator and put big blocks in that.

XQ. 284 When you speak of that, are you referring to Eppenbach, Inc.?

A. Eppenbach, Inc. We built a refrigerator that was the size of this room, maybe a little larger.

XQ. 285 You were not doing that for dry ice?

A. We did that for dry ice. The dry ice had to refrigerate a shipment of beef to Bermuda.

XQ. 286 When was that? [69]

A. Around that time. I think we charged them six or seven hundred dollars for that. Here it is, "One large storage icebox." The inside measurements were $9\frac{1}{2}$ by $9\frac{1}{2}$.

(Deposition of Edwin C. Eppenbach)

XQ. 287 What page is that?

A. 424. We charged them \$601 for that.

XQ. 288 Will you refer to the item on page 421, the second from the top, reading: "May 9th. Six 10 by 10 by 10 molds at \$45 each." Will you tell me what those were?

A. 10 by 10 by 16?

XQ. 289 10 by 10 by 10. Maybe it is 16.

A. That answers the question. We made those molds, too.

XQ. 290 You had forgotten that, I guess?

A. Forgotten it, correct.

XQ. 291 When were those machines delivered—

A. I would not call that a machine. That was a mold.

XQ. 292 That was a mold to put in a press?

A. Put in a press.

XQ. 293 And they were used for pressing dry ice that was shoveled out of a snow tank; is that right?

A. That is correct, yes.

XQ. 294 Did you build those tanks or get the mold? [70]

A. We built the molds.

XQ. 295 Did you ever see them use those molds?

A. I would not say that I did, I would not say that I did not. I remember seeing the large tube of dry ice. That is the best of my recollection, in that I just remember seeing the large tube, but I did not actually see them fill the molds and compress them.

XQ. 296 Do you remember whether you ever saw any of the 10 by 10 by 10 blocks produced at Maspeth?

A. No. I thought they were made up at the General.

XQ. 297 When do you remember their first being made at the General Carbonic's plant in Long Island?

A. The 10 by 10 block?

(Deposition of Edwin C. Eppenbach)

XQ. 298 Yes.

A. When we wanted to refrigerate that large icebox. We did not need those small—what we later call pucks, which we wanted to sell to the ice cream people, but we wanted a large block to refrigerate a large refrigerator on a boat or railroad car. We wanted to have a large block.

XQ. 299 You got those blocks from the General Carbonic Company's plant: is that right?

A. Yes. [71]

XQ. 300 Can you tell me about what date that was?

A. I distinctly remember we built and we worked on a Sunday on that icebox and we got it finished, and on a Monday we had our truck put the blocks in that refrigerator. We got them up at General Carbonic, brought them down, and on a Monday night that whole thing was put on a big trailer truck and it was delivered to the ship.

XQ. 301 Can you find that record of that?

A. Yes. That was that six. It says here, "Delivered May 16th, 1925." If you get an old calendar, I will bet you that is around a Monday or a Tuesday.

XQ. 302 This work for which you have records in 1924, on pages 194, 208, 209, 210, 230 to 235 and 237, did that have anything to do with these machines that you built for the dry ice—Dry Ice Company, those No. 1, 2 and 3?

Mr. Hoxie: I am going to suggest to the witness that he examine those pages before answering.

A. 232?

(Deposition of Edwin C. Eppenbach)

XQ. 303 Beginning at page 194 and continuing through the pages that have been mentioned by you up to page 237.

Mr. Hoxie: 194. 208 to 210. [72]

A. 194 we started in August, 1924.

XQ. 304 What was that work done that is referred to on page 194?

A. One square maple form, 12 inches high, 6 by 6 inside diameter. The inside was 6 by 6, and 12 inches long. That was a mold out of maple to form this snow. That is the start.

XQ. 305 For the use of what machine?

A. There was no machine. We were just starting to feel our way. We were experimenting then.

XQ. 306 Who originally contacted you with regard to doing any work on the manufacture of dry ice? What individual?

A. Well, I am trying to recall the man's name. I used to go to lunch up at the Courthouse Square Restaurant. I met either the president or the vice-president of the Pressed Air Corporation. I had lunch with him one time.

XQ. 307 You were working on this machine, were you not, before Mr. Martin came into the picture?

A. No, we were working for Prest Air before Mr. Martin came into the picture.

XQ. 308 And working on this machine with the piston?

A. I won't say whether we were working on the machine, but we were working on experimenting, because during the [73] conversation at that luncheon with the president of the Prest Air Corporation, he said to me, he said,

(Deposition of Edwin C. Eppenbach)

"We make CO₂ bottles for filling these little bottles for use on automobile tires," and he said that a British surgeon about 30 years prior to that made snow out of it and used it for freezing tissue, and he thought that we could experiment and develop a means of making commercially to sell for home refrigerators, and I told him that I would go along with him and help him experiment and try to develop the product. And that was the start right there (indicating a paper).

Mr. Hoxie: Referring to page 194?

The Witness: Yes. That was the start, see. Then after we got fooling around with the product, experimented and we decided that we could make a compressor type of machine to get it in production.

XQ. 309 Now, if—

A. (Continuing) At that time, then Mr. Martin entered the picture.

XQ. 310 Can you tell me about when you first met Mr. Martin in connection with this matter?

A. Well, around—

XQ. 311 The billings there would indicate that. [74]

* * * * *

A. About October, 1924 I first met Mr. Martin. We had started in August and September. And about two or three months later we met Mr. Martin.

XQ. 312 On page 210, the fourth item from the top, dated November 7th, "One pattern for cylinder case, snow machine." What was that cylinder case, do you remember? Was that the case to enclose the piston?

A. Well, we started to make snow a number of different ways. We made a wood cylinder first. We got

(Deposition of Edwin C. Eppenbach)

the bottles at our place and we had a canvas bag and this wood cylinder tank, and I see here that we used hydraulic pressure on the mold. From that we went to designing a machine to compress it. That is the best of my recollection. I could not give you any better story than that.

XQ. 313 Can you remember the date, the last time of your own knowledge that the Dry Ice Corporation made these small pucks, as you call it, or blocks $3\frac{1}{2}$ by $3\frac{1}{2}$ by 8 in the machines that you built for them? [75]

A. Well, they made them $3\frac{1}{2}$ by $3\frac{1}{2}$ by 8, and then we had a saw. We sawed them off. We made the pucks for the thickness that we wanted.

XQ. 314 Yes, but what I am getting at is this: As near as you can will you give me the date of the last use of those machines that you built for the Dry Ice Corporation by the Dry Ice Corporation that you know of yourself?

A. The last use was in September, 1925, that I know of. After that my mind went in another direction.

XQ. 315 Are you sure they were using them in September, 1925?

A. Yes. They had it out there at the Liquid Carbonic plant and they made—I saw them actually make dry ice out there.

XQ. 316 On that day? A. I won't say—

XQ. 317 Or still earlier than that?

A. I went out there to see those machines on the day of the delivery of the machines, and I distinctly remember being there when all our machines were delivered and that same day the Purvis machines were delivered. So we had a flock of machines out there. They were making dry ice on our first machine that day. [76]

(Deposition of Edwin C. Eppenbach)

XQ. 318 You are sure they were? A. Yes.

XQ. 319 You do not remember seeing any snow tanks there on that day?

A. No, I never remember seeing any snow tanks out at the Liquid Carbonic plant.

XQ. 320 Were you ever asked by the Dry Ice Corporation to take back anyone of these three machines that you made for them? A. No.

XQ. 321 Did you ever take anyone of the three back? A. No.

XQ. 322 Do you know what became of those three machines yourself?

A. No, I could not answer that. I do not know what happened to them.

XQ. 323 Did you know that the Dry Ice Company moved from the Maspeth plant of the Liquid Carbonic Company to the Long Island plant of the General Carbonic Company? A. They moved?

XQ. 324 Yes. They moved their business of manufacturing dry ice from one plant to the other?

A. I do know that I have been in both plants right at the start and I did not know that they would consider [77] themselves being—locating—located at either plant. The Dry Ice had an office in New York and—I would not know where they would consider their plant, but I do know that they were making stuff at General. They made those large cubes out at General and they made the small pucks out at Liquid.

XQ. 325 Were you in the General Carbonic's plant from time to time when those 10 by 10 by 10 blocks were being made?

A. I was up there on several occasions.

(Deposition of Edwin C. Eppenbach)

XQ. 326 Did you ever see any of these three machines that you had made and sent to the Maspeth plant at the General Carbonic plant?

A. No, I never saw them there. They may have been sent, but not to my knowledge.

XQ. 327 You never saw them being used at the General Carbonic plant, did you? A. No.

XQ. 328 You did not have anything to do with moving them, did you? A. Moving them?

XQ. 329 From the Maspeth plant.

A. From the Maspeth plant? I remember moving them out to the Maspeth plant. [78]

XQ. 330 Do you remember whether or not you moved them away from the Maspeth plant later?

A. It seems to me that they had asked permission to store some machines. They wanted to know whether I had room. I had a little shop. I could not give them any room. That is the only recollection I have.

XQ. 331 Referring to this last page, 434, of your account of the Dry Ice Corporation of America, September 10, 1925, reading "Trucking two machines," what two machines were those?

A. That was when we finished the two machines and we sent them out to the Liquid Carbonic.

XQ. 332 To the Maspeth plant? A. Yes.

XQ. 333 You are sure of that? A. Certainly.

XQ. 334 And those two machines had never been out at the Maspeth plant before they were trucked out in September, 1925; is that right.

A. I do not think they were out until we delivered them.

XQ. 335 In September, 1925? A. That is right.

XQ. 336 That is all. [79]

* * * * *

Mr. Lyon: Please note that the reading and signing by the witness is waived.

Mr. Hoxie: Yes. [80]

* * * * *

JAMES W. MARTIN,

called as a witness in behalf of the Defendants, having been first duly sworn by the notary public, testified as follows:

Direct Examination

By Mr. Hoxie:

Q. 1 Will you give your name and address, Mr. Martin?

A. James W. Martin, 111 Broadway, New York City.

Q. 2 Are you the Mr. Martin who has testified at the trial of this case? A. I am.

Q. 3 Did you have any dealings with Mr. Eppenbach with regard to machines for making dry ice other than in 1924 and 1925? A. I did not.

Q. 4 Do you recall the circumstances of the delivery of two machines to the Maspeth plant of Liquid Carbonic Company by Mr. Eppenbach or his company?

* * * * *

A. I have the recollection that the No. 2 and No. 3 machines were delivered a considerable time, a considerable number of weeks after the first machine had been delivered. [84] The actual date of delivery of the second and third machines I do not have.

(Deposition of James W. Martin)

Q. 6 You remember the occasion apart from the date?

A. No, I do not. I do not remember the occasion when two machines from Eppenbach and three from Purvis were delivered on the same day. I probably was not at the plant.

Q. 7 Did you see two new machines at the plant of Liquid Carbonic some time after the first machine had been delivered?

* * * * *

A. Yes, I saw two machines.

Q. 8 Do you recall the circumstance of there being three other machines made by Purvis?

* * * * *

A. There were three other machines made by Purvis.

Q. 9 Were they all at the plant of Liquid Carbonic?

* * * * *

A. I have not any recollection now of seeing all [85] of these machines at the Maspeth plant.

Q. 10 You heard Mr. Eppenbach's testimony here today, Mr. Martin? A. Yes.

Q. 11 Do you recall the circumstances of the making of large blocks, 10 inches by 10 inches, at General Carbonic Company's plant? [86]

* * * * *

Q. 14. Do you recall ever seeing any 10 x 10 x 16 inch molds—

Mr. Lyon: It is 10 x 10 x 10, is it not?

The Witness: 10 x 10 x 16. [87]

Mr. Lyon: Excuse me.

Mr. Hoxie: That is the way it reads.

(Deposition of James W. Martin)

By Mr. Hoxie:

Q. 15 Do you recall molds of those dimensions?

A. I recall molds of those dimensions.

Q. 16 Do you recall who made them?

A. We had molds made by Eppenbach, Incorporated, of those dimensions.

Q. 17 Do you know what was done with them?

A. Molds were made by Eppenbach for the manufacture of larger sized blocks of dry ice than could be made on the piston type of press that has been discussed.

Q. 18 What was the occasion for having such larger blocks? [88]

* * * * *

A. There was in May of 1925 a special shipment of large blocks of dry ice required by the sales department for a shipment in one of the Furness-Withy steamboats. The capacity of the Maspeth plant did not permit that this large amount of dry ice be drawn from the Maspeth plant. Dry ice for this shipment was made at the General Carbonic Corporation at Sixth Street and East River, but not under my supervision. I knew of it inasmuch as I was chief engineer and assistant to the president. But it was not made under my supervision. It was a sporadic use of the General Carbonic Company's facilities for a special shipment of ice.

Q. 19 Do you recall an occasion on which some blocks of dry ice were sent to the Boulevard Pharmacy?

* * * * *

A. Yes, I remember several shipments of dry ice being shipped to Boulevard Pharmacy.

(Deposition of James W. Martin)

Q. 20 Did you have any knowledge of the construction or installation of a cabinet for the Boulevard Pharmacy?

A. Yes. I am familiar with that cabinet.

Q. 21 Did you have something to do with designing or arranging for its installation? [89]

A. Yes. I had something to do with the design, with the installation, with the obtaining of the small three and a half by three and a half by eight inch blocks from Maspeth. Of actually placing them in the cabinet and setting the cabinet into operation.

Q. 22 Were they blocks made on the piston machine?

A. They were.

Q. 23 Was that the machine made by Mr. Eppenbach?

A. It was.

Q. 24 Was it the first machine?

A. It was on the first machine.

Q. 25 Was there one or were there more than one cabinet made for Boulevard Pharmacy?

A. I remember only one.

Q. 26 I note on the record that Mr. Eppenbach's records show a billing under date of May 6, 1925, for one dry ice-hardening cabinet for Boulevard Pharmacy. Where was that pharmacy located, do you know, Mr. Martin?

A. In Long Island City. The exact location I do not remember. But it was not a long distance from Maspeth.

(Deposition of James W. Martin)

Q. 27 Was it in Corona?

A. It was probably in Corona or Astoria.

Q. 28 Do you recall in the course of the work with [90] this first compression machine made by Mr. Eppenbach the installation of a pyramid shaped screen?

A. Yes.

Q. 29 Was there more than one on the first machine?

A. There was—yes, more than one on the first machine. May I clarify that answer?

Q. 30 Yes.

A. There was not more than one at the one time on the first machine. But we tried out several of the pyramidal screens on the first machine.

Q. 31 Do you recall what materials were used for the screen proper?

A. My memory is that it was punched steel backing, steel of about a quarter inch thickness and first we used a brass screen or cloth and later used a monel screen or cloth.

Q. 32 I will read you the rescription of one item in Mr. Eppenbach's records about which he testified this morning. It is on page 418, an entry of April 25th, 1925, which reads, "Make pyramid shape piece for experimental purposes on snow machine No. 1 covered with brass mesh."

Mr. Lyon: That is objected to.

Q. 33 Does that phraseology correspond to your recollection of a brass mesh screen? A. Yes.

* * * * *

(Deposition of James W. Martin)

Q. 34 There is an entry of the same date, as follows:
"Make pyramid shaped snow devices No. 2 for machine
No. 1, 4½ to slant both ways, with money screen as
per inst."

* * * * *

Q. 35 I will ask you, Mr. Martin, whether or not that
description as I read it from this record corresponds with
your recollection of an installation employing a monel
screen? A. It does.

Mr. Hoxie: That is all. That is all I have, unless
Mr. Lyon wishes to ask him some questions.

Mr. Lyon: No.

Mr. Hoxie: May we waive signature without waiving
your objection? [92]

Mr. Lyon: Without waiving any objections of mine
heretofore made or to be made, why, I will waive the
signature.

Mr. Hoxie: Is it agreeable to you, Mr. Martin, to
waive the signature?

Mr. Martin: It is agreeable to me, yes.

(Witness excused.)

(Depositions closed.)

[Endorsed]: Filed Jun. 12, 1944. [93]

[Endorsed]: No. 11054. United States Circuit Court of Appeals for the Ninth Circuit. International Carbonic Engineering Company, Appellant, vs. Natural Carbonic Products, Inc., a corporation, George Pepperdine Foundation, a corporation, L. H. Polderman, W. L. Benson and C. B. Benson, individually and as a copartnership doing business under the fictitious firm name and style of Natural Carbonic Products, Appellees. Transcript of Record. Upon Appeal from the District Court of the United States for the Southern District of California, Central Division.

Filed May 8, 1945.

PAUL P. O'BRIEN,

Clerk of the United States Circuit Court of Appeals for
the Ninth Circuit.

In the United States Circuit Court of Appeals
for the Ninth Circuit

No. 11054

INTERNATIONAL CARBONIC ENGINEERING
COMPANY

Appellant

vs.

NATURAL CARBONIC PRODUCTS, INC., a corporation,
GEORGE PEPPERDINE FOUNDATION,
a corporation, L. H. POLDERMAN, W. L. BENSON
and C. B. BENSON, individually and as a copartner-
ship doing business under the fictitious firm name and
style of NATURAL CARBONIC PRODUCTS,

Appellees

STATEMENT OF POINTS ON APPEAL

The appellant, pursuant to the provisions of Rule 19, paragraph 6, of the Rules of Practice of the United States Circuit Court of Appeals for the Ninth Circuit, does hereby specify the following as the concise statement of the points upon which it intends to rely on appeal:

I

The trial court erred in finding that the machine of Figure 2 and of Figure 5 of the drawings of the patent in suit include the same structural elements, that the relationship between those elements is identical in the two machines, and that both machines perform the same function and produce the same result. (Finding of Fact 16.)

II.

The trial court erred in finding that the evidence establishes that J. W. Martin, while in the employ of Prest-Air Corporation, at New York and Maspeth, Long Island, during the first part of 1925, had constructed under his direction unitary machines for solidifying and pressing carbon dioxide into blocks, and that said unitary Martin machines contained elements in the same relationship and with the same functions as required by the claims of the patent in suit. (Finding of Fact 18.)

III

The trial court erred in finding that the evidence establishes that the Martin unitary machines were openly, successfully and commercially used in manufacturing operations in this country and performed the same function, operated in the same manner by the performance of the same steps and obtained the same result as that attributed to the patent in suit, at least during the first part of 1925, and more than two years before application was made for the patent in suit, and that Martin and his engineer, Hood, disclosed the construction and operation of the unitary Martin machines to McLaren at least as early as October 1926. (Finding of Fact 19.)

IV.

The trial court erred in finding that plaintiffs' expert admitted there was nothing new or in the nature of an invention in the apparatus of Fig. 5 of the patent in suit except the double jacket 102 and the dividing and separating members 110 or in the apparatus of Fig. 1 except the exhauster 81 and diaphragm valve 84. (Finding of Fact 20.)

V

The trial court erred in finding that the claims relied upon are vague and indefinite as to some of the factors controlling the construction and operation of the apparatus and the performance of the method, are functional as to some others, and totally silent as to others and that the claims in issue are deficient in specifying those controlling factors necessary for the construction and operation of the apparatus and the performance of the method and that the controlling factors and details are omitted from the specification and therefore the claims derive no assistance from the specification. (Finding of Fact 21.)

VI

The trial court erred in finding that prior to the date of invention of the patent in suit that one skilled in the art knew or could readily determine without invention that solid carbon dioxide could be formed in an air-tight gas-tight chamber by the evaporation of the liquid carbon dioxide and that the same could be compressed in the same chamber and that it was not necessary to tamp triple point carbon dioxide before pressing it into blocks and that the patent in suit lacks invention in view of the state of the art. (Finding of Fact 23.)

VII

The trial court erred in finding that the elements and steps of the claims of the patent in suit which relate to the solidification of carbon dioxide are entirely independent of and are performed independently of the elements and steps of the apparatus for compressing the material and produce no new function or result. (Finding of Fact 24.)

VIII

The trial court erred in finding that claims 38 and 39 do not define or include the solidification of carbon dioxide under triple point conditions. (Finding of Fact 25.)

IX

The trial court erred in finding that every element and step of the claims in issue with the mode of operation described in the patent in suit are disclosed in the prior art patents listed in Finding of Fact 28.

X

The trial court erred in finding that the apparatus claims in issue, 4, 31, 32, 34 and 36, are met without inventive change by the disclosures of the prior art patents specified in Finding of Fact 29.

XI

The trial court erred in finding that the solidification of carbon dioxide and its compression into blocks are disclosed in any of the prior art patents specified in Finding of Fact 26 other than Slate 1,643,590, Martin 1,887,692 and Elworthy British 7436 of 1895. The patents to Flemming 955,454 and Julius 1,018,568 disclose the solidification of carbon dioxide and its compression into miniature circular sticks.

XII

The trial court erred in finding that a unitary apparatus in which both the solidification of carbon dioxide and its compression into blocks are performed is disclosed in any of the prior art patents specified in Finding of Fact 27 other than the patents to Martin 1,887,692 and to Slate 1,643,590. The patent to Julius 1,018,568 discloses the solidification of carbon dioxide and its compression into

miniature circular sticks within the same unitary apparatus.

XIII

The trial court erred in finding that in defendants' HPM and Frick presses, prior to the pressing operation, the solidifying and pressing chamber is open to the atmosphere so that carbon dioxide gas is freely permitted to escape through a vent pipe and such vent to the atmosphere remains open during all of the pressing operation. (Finding of Fact 30.)

XIV

The trial court erred in finding that the defendants' machines, the HPM and Frick presses, contain the same elements in the same relationship and have the same mode of operation as the elements in the prior art devices, including the Martin unitary machines and the disclosures of the prior patents referred to in Findings of Fact 28 and 29, that the method of use of defendants' machines, the HPM and Frick presses, include the same steps in the same relationship as the steps employed in the use of the machines of the prior art and that neither defendants' machines nor their method of use complained of as an infringement involve inventive change over the prior art. (Finding of Fact 31.)

XV

The trial court erred in determining that the defendants above named, and each of them, have not infringed the patent in suit 2,025,698, and particularly claims 4, 31, 32, 33, 34, 36, 38 and 39 thereof.

fringed the patent in suit 2,025,698, and particularly claims 4, 31, 32, 33, 34, 36, 38 and 39 thereof, by using machines embodying the invention claimed in claims 4, 31, 32, 33, 34 and 36 and employing the method claimed in claims 38 and 39.

Dated: This 16th day of May, 1945.

LYON & LYON

LEONARD S. LYON

REGINALD E. CAUGHEY

Attorneys for Appellant

Receipt of a copy of the foregoing Statement of Points on Appeal is hereby admitted this 16th day of May, 1945.

C. A. MIKETTA

WARD D. FOSTER

Attorneys for Appellees.

[Endorsed]: Filed May 17, 1945. Paul P. O'Brien,
Clerk.